

Bulletin Number Sixteen

SECOND EDITION

A Technical Hand-book  
*on*  
Expanded Metal Lath

REPRESENTED BY  
JOHNSON-BIENER CO., Inc.  
315 CITIZENS BANK BLDG.  
NORFOLK, VIRGINIA  
TELEPHONE 8487

Prepared by  
The Berger Manufacturing Company  
Canton, Ohio

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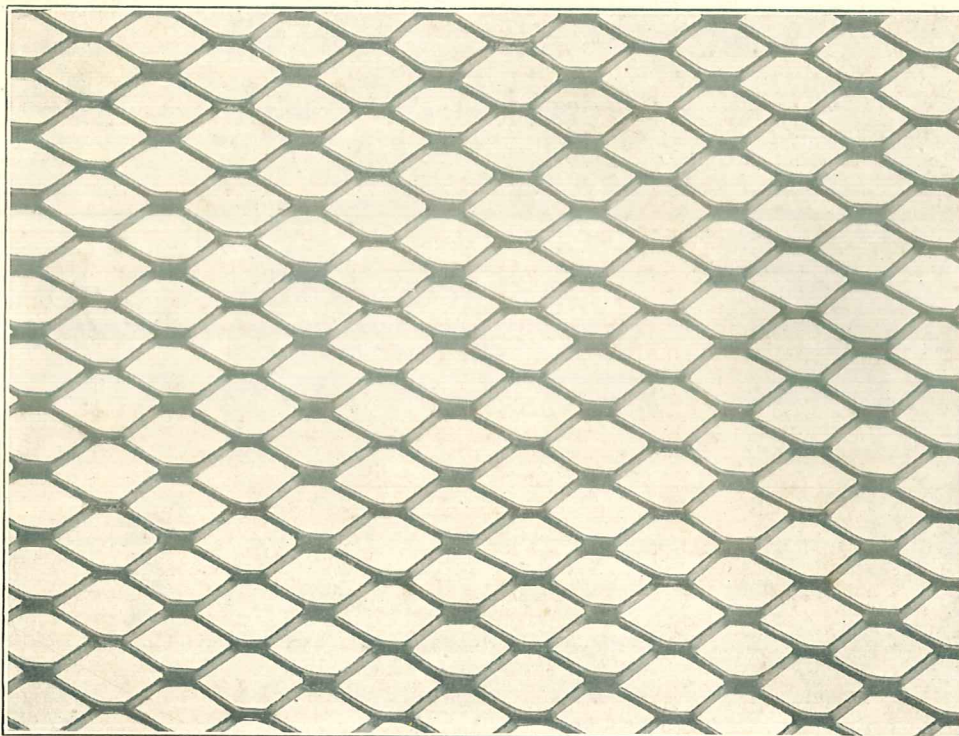


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BULLETIN NUMBER SIXTEEN

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# EXPANDED METAL LATH



Its Use and Practical Application  
(ILLUSTRATED)

## The Berger Manufacturing Co.

CANTON, OHIO



BOSTON, MASS.  
NEW YORK, N. Y.  
PHILADELPHIA, PA.

CHICAGO, ILL.  
ST. LOUIS, MO.  
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Export Department, Berger Building, New York City, U. S. A.

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# MEMORANDA

This image shows a single, blank page from a lined notebook. The paper has a light cream or off-white color with some minor discoloration and faint smudges, suggesting it might be old. The page is ruled with thin, dark horizontal lines spaced evenly apart. There are approximately 20 lines visible on the page. The left edge of the page shows the binding of the notebook, and the right edge is slightly irregular. The overall appearance is that of a clean but aged sheet of stationery.

Because *Metal Lasts*

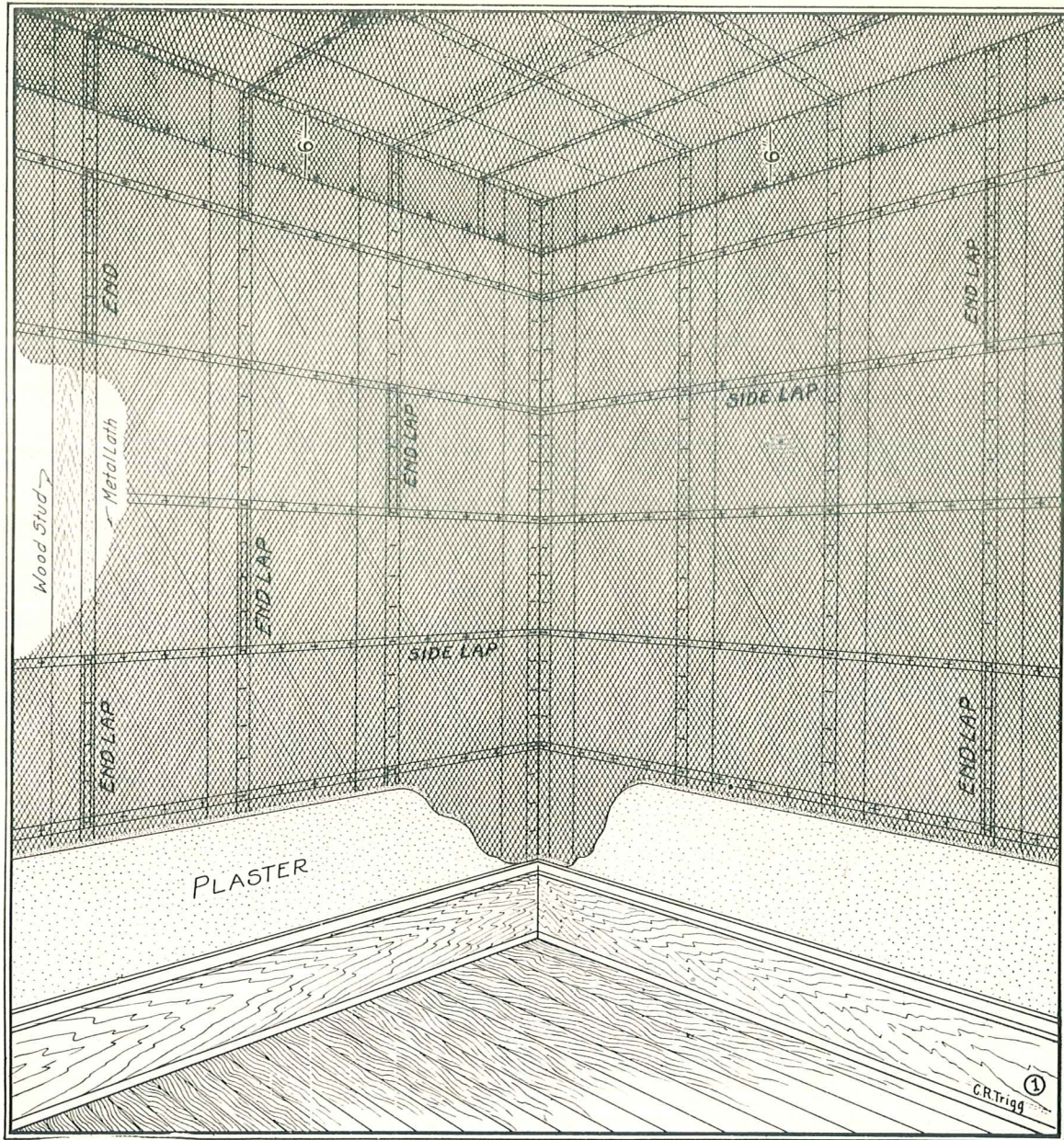






## Application of Expanded Metal Lath on Wood Frame

Showing Slow Burning Residence Construction With Expanded  
Metal Lath Applied on Two by Four Wood Studs  
Spaced 16" Center to Center



Drawing No. 1

Expanded Metal Lath, preferably 24 gauge, is applied directly to 2" x 4" wood studs with 1 1/4-inch No. 14 gauge staples spaced not over 6 inches apart. The first sheet should be applied at the juncture of the ceiling and side walls, extending at least 6 inches each way to prevent cracks appearing at the angle.

On the ceiling and side walls edges of sheets

should lap at least 1/2" at all side and end laps, and the edges of all sheets should be wired together at least once between the studs or joists to prevent the edges from separating when the plaster is put on.

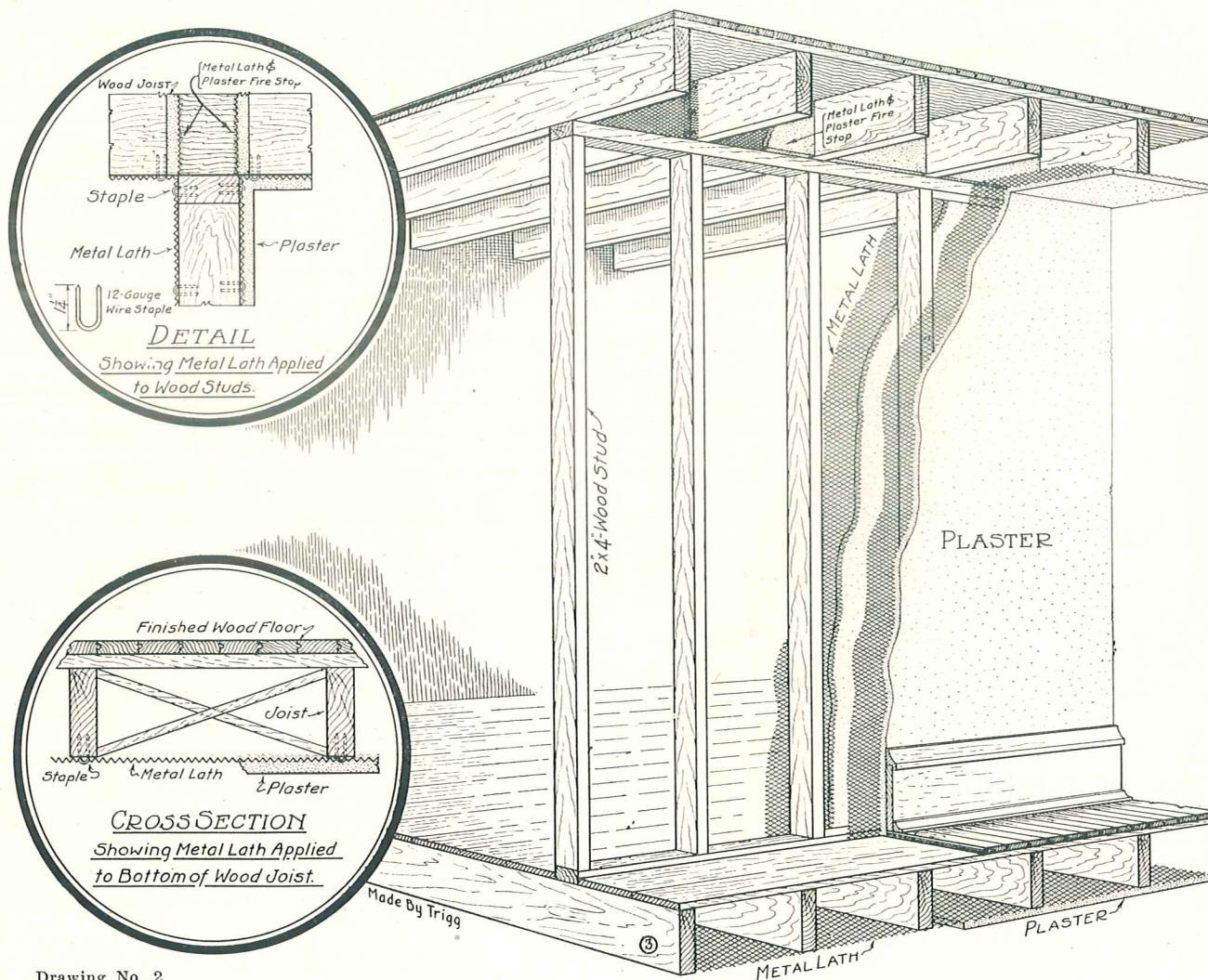
In no case should sheets of lath start or end in a vertical corner.





## Fire-Retarding Partition

Showing in Further Detail Expanded Metal Lath on 2" x 4"  
Wood Stud Hollow Partition



Drawing No. 2

Fire Tests which have been made by the Columbia University and Associated Metal Lath Manufacturers demonstrate that a hollow partition constructed of wood studs on which Expanded Metal Lath and plaster is used will confine fire of seventeen hundred degrees to the room in which it originates for a period of over one hour.

Expanded Metal Lath and plaster should be applied as shown in the above detailed suggestion,

care being taken to bring the lath and plaster tight down to the floor to prevent fire and sound being transmitted to next room, and also to prevent mice and rats making passage ways through walls.

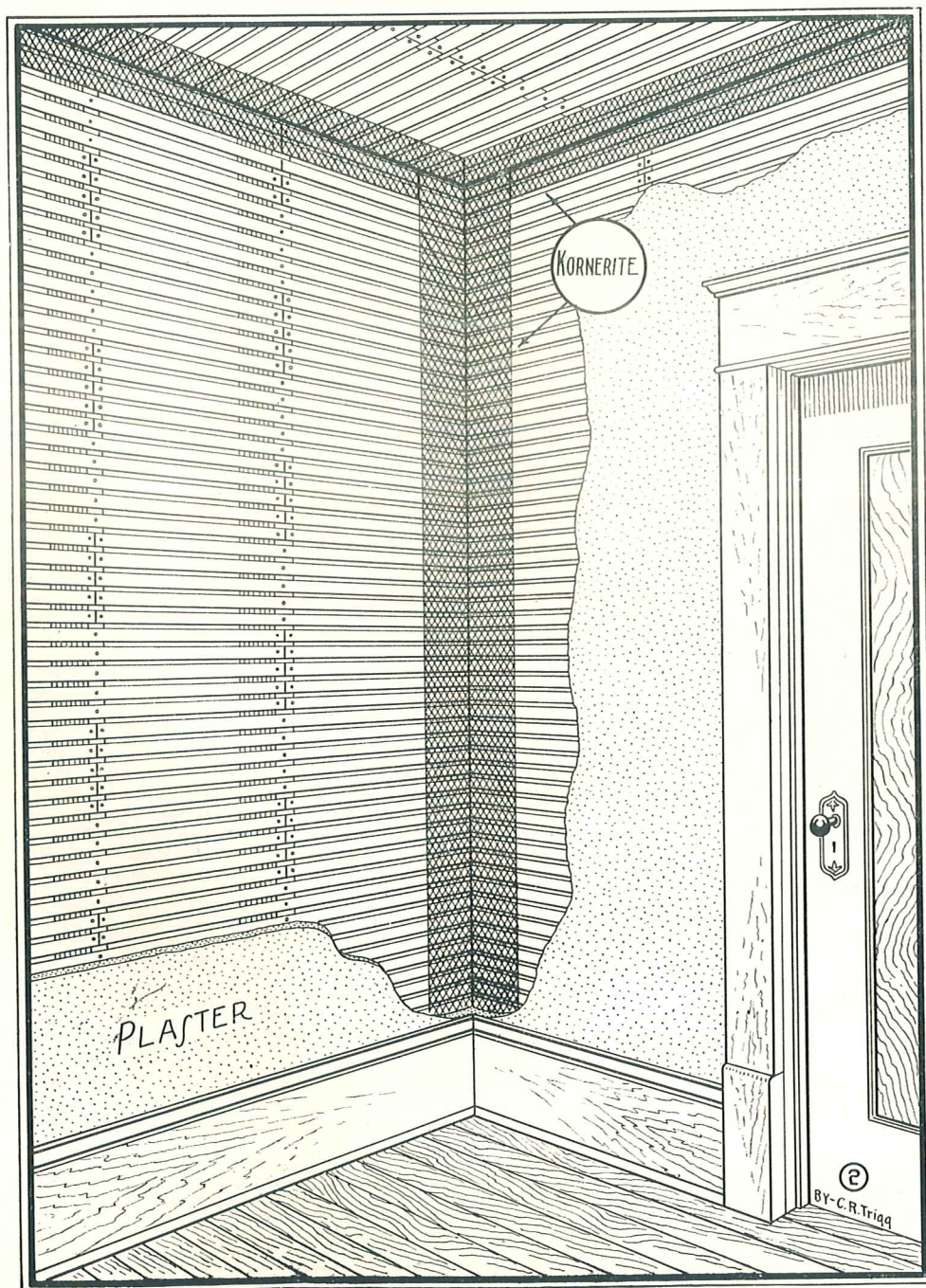
A building with this construction is more sanitary, stronger and much less liable to destruction by fire than all-wood construction. This safety and satisfaction is worth much to your client.





## Berger's *Kornerite*

Showing Its Use Over Wood Lath to Reinforce Corners and  
Prevent Plaster From Cracking



Drawing No. 3

"Kornerite" angles are 26 gauge, 96" long, with 4" legs.

Shipped 25 pieces to the crate.

It is easily and quickly applied, simply being placed in position and stapled over the wood lath. Use 14" Number 14 Gauge wire staples or 4-penny nails. The use of "Kornerite" stiffens the construction and also is a protection against cracks in the plaster at the corners caused by ordinary shrinkage and settlement of the structure.

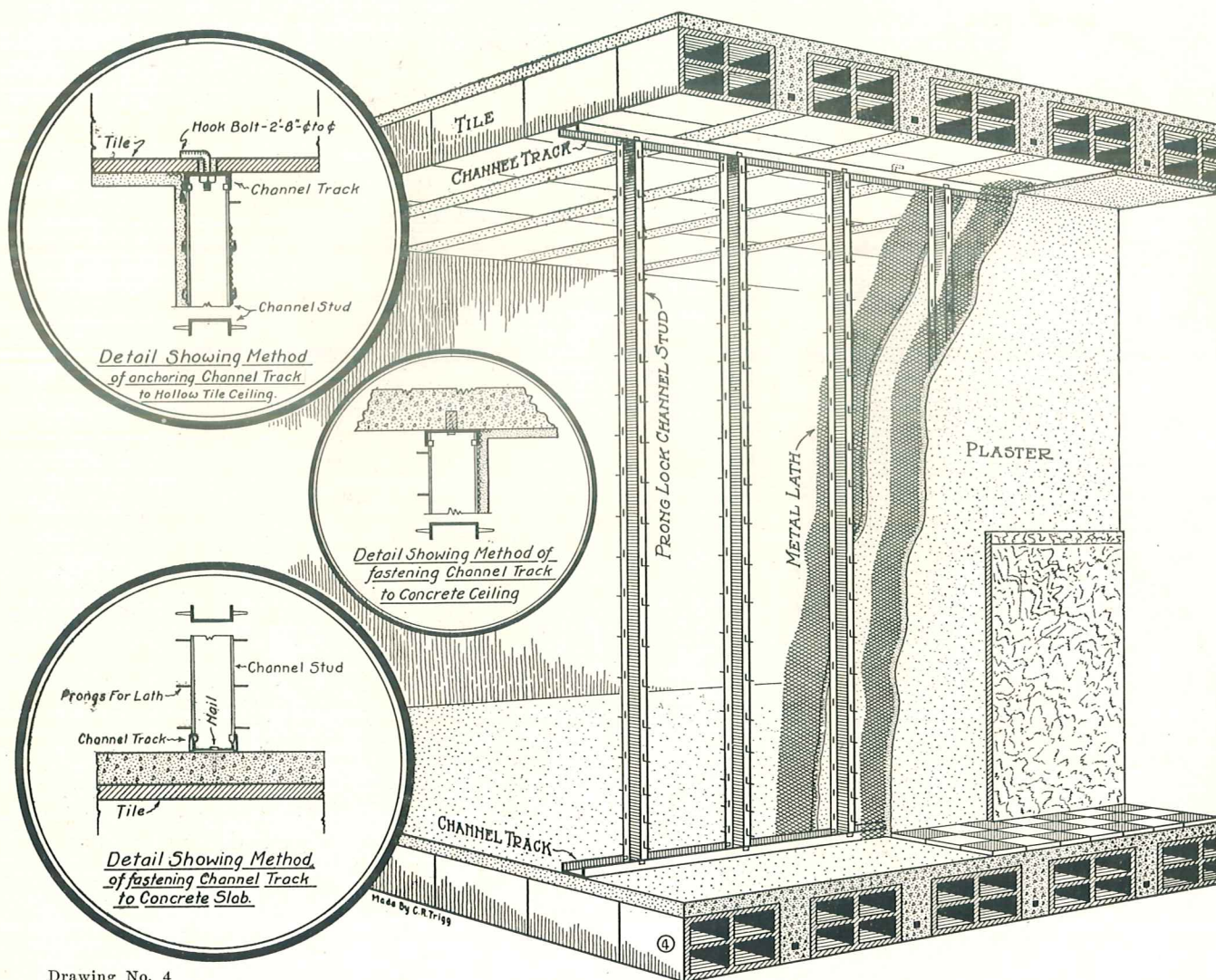
Where your client's appropriation will not permit the use of Expanded Metal Lath we recommend "Kornerite" as it costs but little extra and will more than pay for itself in preventing unsightly cracks. Decorations may be applied with safety as soon as the plaster is dry.





## Fire-Resistive Hollow Partitions

Showing Expanded Metal Lath Applied Both Sides on Prong Lock Pressed Steel Channel Studs



Drawing No. 4

The Berger Pressed Steel Prong Lock Studs insure **positive fastening** of Expanded Metal Lath at fixed intervals as the prongs must be clinched over the lath before the plasterer can spread the mortar. Note (in lower left circle) the clips on channel track which are clamped around the channel stud to hold it in place.

The form of partition shown has resisted a fire of seventeen hundred degrees Fahrenheit during a three-hour test without any sign of failing. This construction is economical, light-weight and sound-proof—used extensively in those buildings which are commonly termed fireproof.

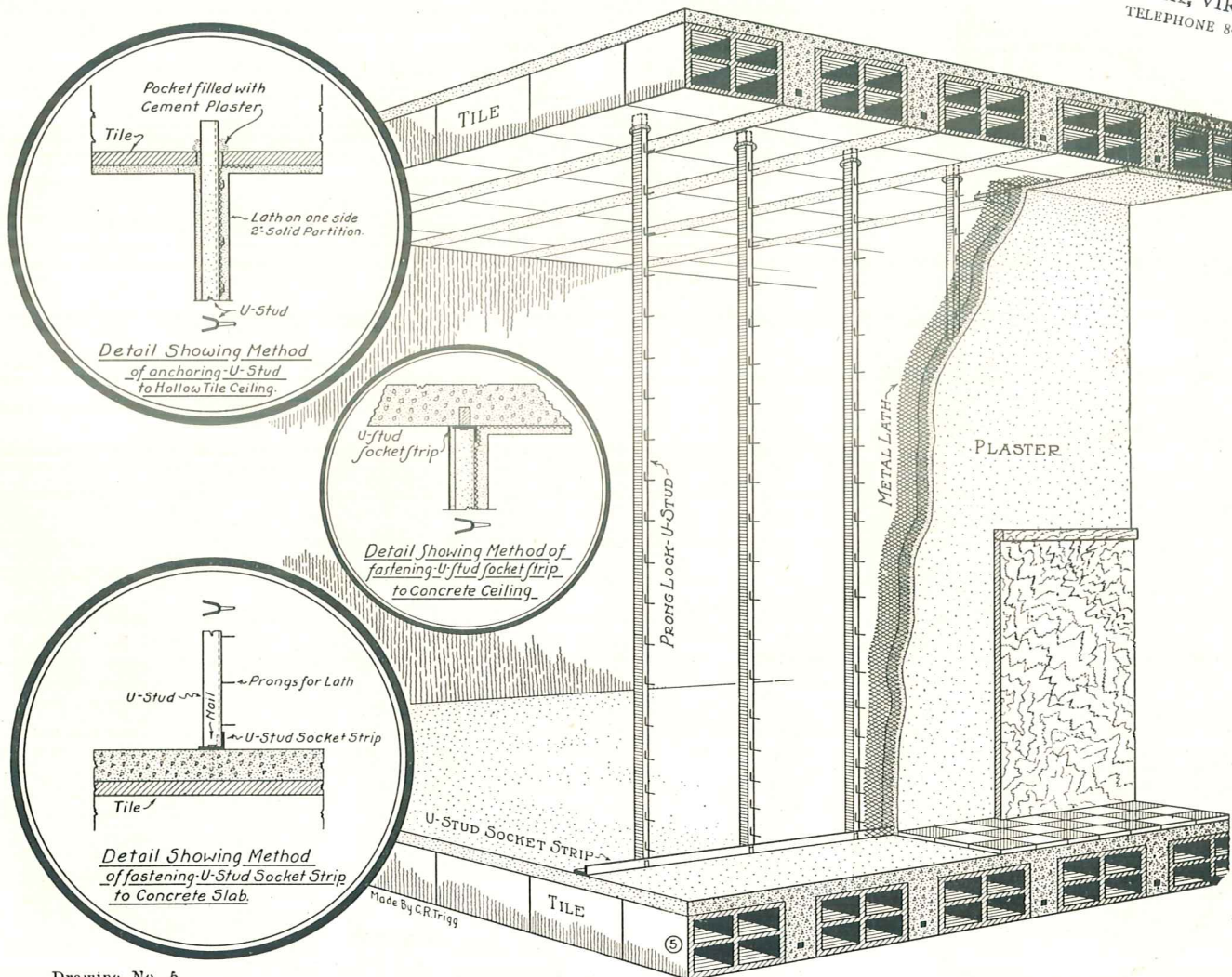




## Fire-Resistive Solid Partition

Showing Expanded Metal Lath Applied to One Side Only of  
Pressed Steel Prong Lock Studs

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Drawing No 5

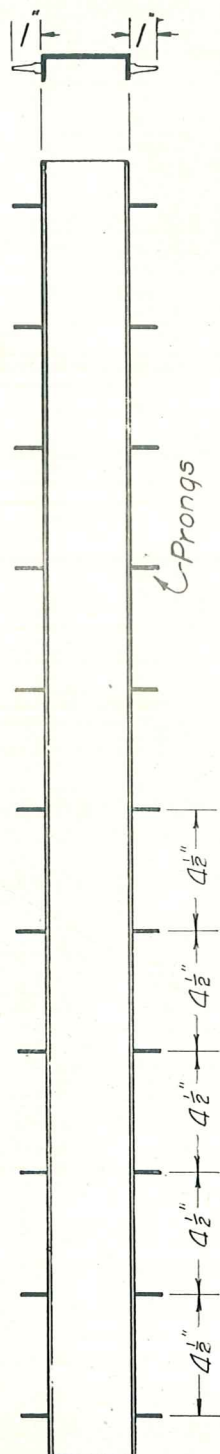
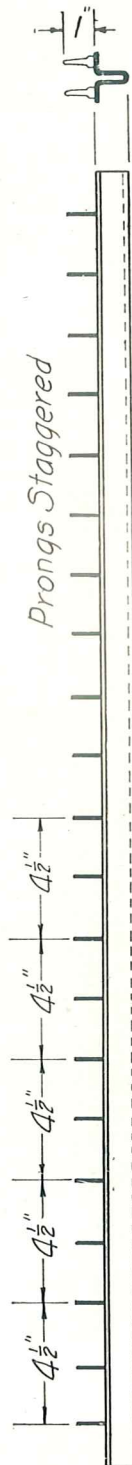
This partition finishes two inches thick, the Pressed Steel Prong Lock Studs being completely imbedded in the mortar. It is especially desirable where saving in space is a necessity. Recommended for stairways, elevator shafts, storage houses, mercantile buildings and structures of like character.

The partition when completed forms a homoge-

neous mass and will resist the most intense fire for hours. Water from fire hose, applied while wall is red hot, will not cause the partition or wall to disintegrate, warp or "blow."

The Studs are held at top by channel or angle track and by angle at bottom, clips having been punched out at proper intervals to receive studs.



Channel StudU-StudTee Stud

## Channel U. & T. Steel Studs

Showing Prongs Spaced to Give  
a Positive Fastening for  
Expanded Metal Lath  
at Fixed Intervals

The Underwriters' Laboratories favor a positive method of fastening lath that is not subject to human carelessness or error.

The Berger Prong Lock Studs provide protection, as the Prongs must be clinched over the Expanded Metal Lath before the plasterer can pass his trowel over the surface.

The prongs also provide means for the rapid application of the lath with proper spacing assured.

Channels or angle tracks are provided with suitable clips punched therefrom at proper intervals which hold the studs at top and bottom. These tracks in turn are fastened by Expansion bolts at ceiling and floor. They line up the partition straight and true.

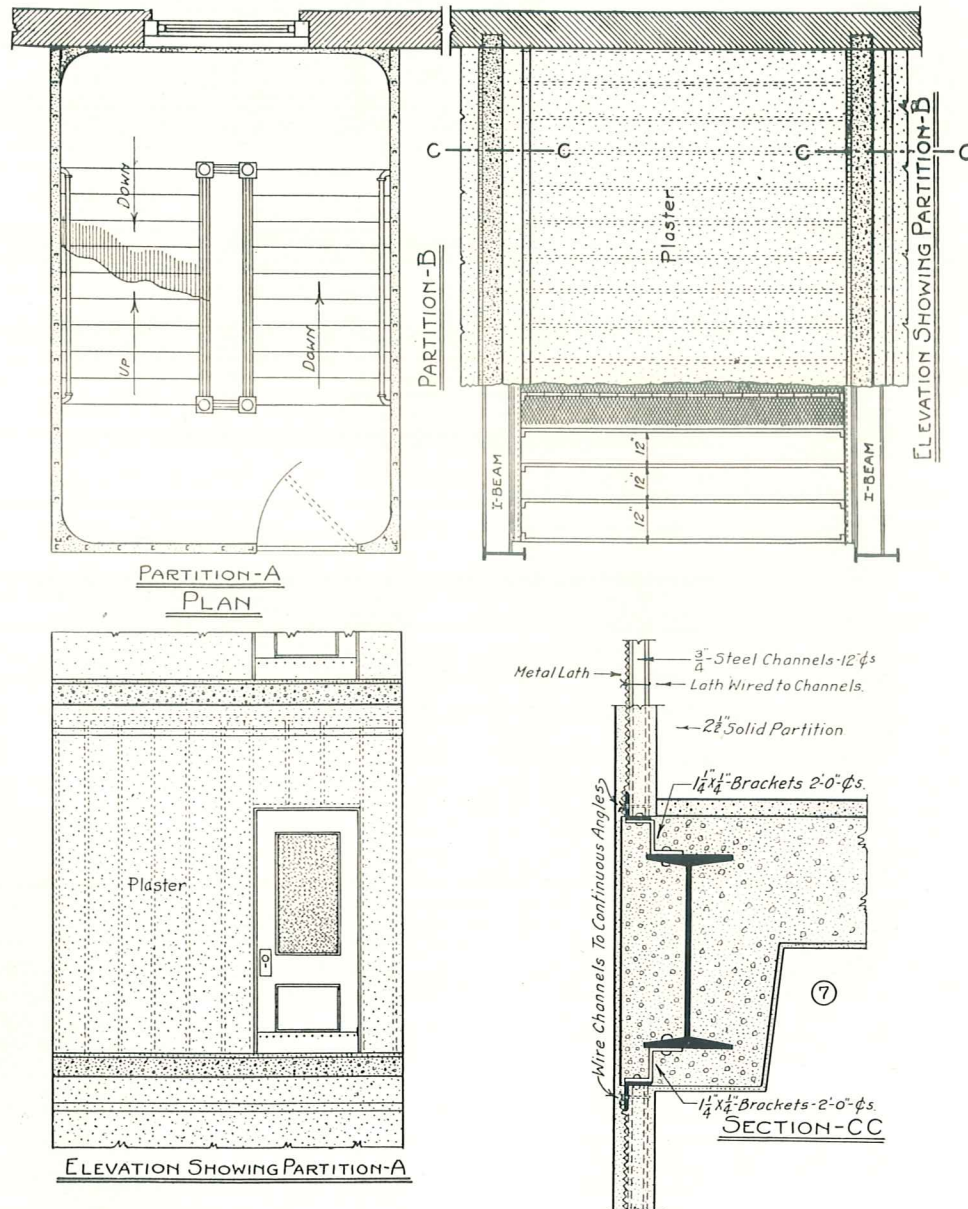
The whole construction is easily erected.





# Standard Fire-Stair Well

Constructed of Steel Studs and Expanded  
Metal Lath and Plastered  $2\frac{1}{2}$ " Thick



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Drawing No. 7

Two and one-half inch solid Expanded Metal Lath partitions were tested at the Columbia University Testing Station, Brooklyn, N. Y., under the regulations of the Committee on Fire Hazards of the Industrial Board of the New York State Department of Labor, July 17, 1914. The test lasted for three hours and then water was applied through

a regulation fire nozzle under pressure. Quoting from Prof. MacGregor's report:

"No fire, smoke or water came through the partition and after it had dried out it was firm and solid and gave a good ring when struck with a hammer."

This tells the whole story.

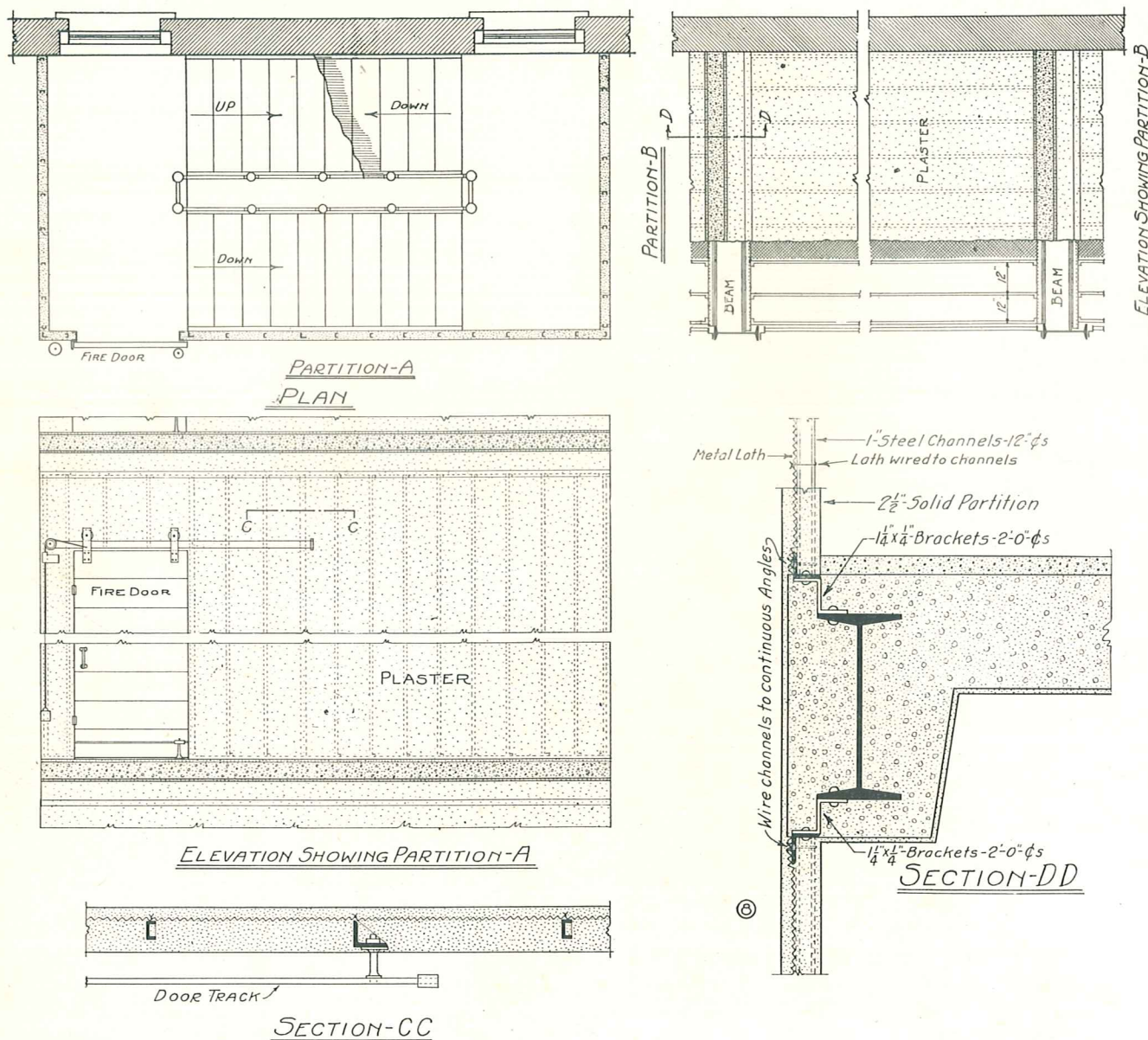
Two and one-half inch solid partitions were passed for elevator shafts and stair enclosures.





## Standard Factory Stair Inclosures

With Gravity Fire Door



Drawing No. 8

This illustration shows in detail the most approved method of construction for solid partitions for enclosing stair wells and elevator shafts. They take up little space, save weight and make a dependable fire wall.

A practical demonstration of the strength and

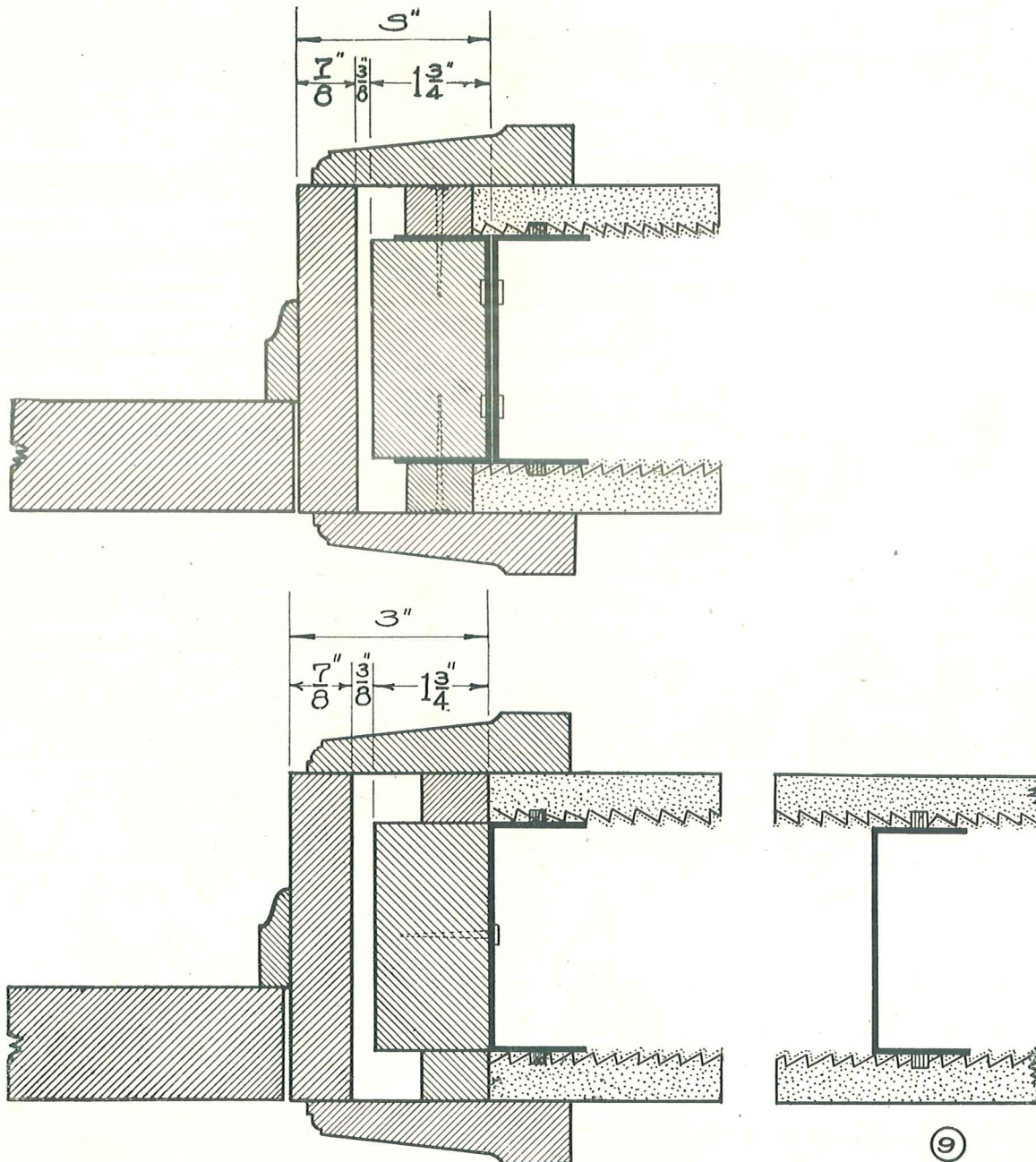
fire resistance obtained with this construction occurred when the Bacon Department store, Boston, burned. The elevator inclosure made of steel channels, Expanded Metal Lath and plaster, withstood the ravages of a severe fire and stood intact like a monument amid the wreckage.





## Donstruction at Door Jamb

Channel Hollow Partition. Channels Form I Stud  
to Receive Door Frame or Buck



Drawing No. 9

This method of construction makes a very rigid frame and takes up the constant pounding of the door in closing. It allows for simple adjustment of

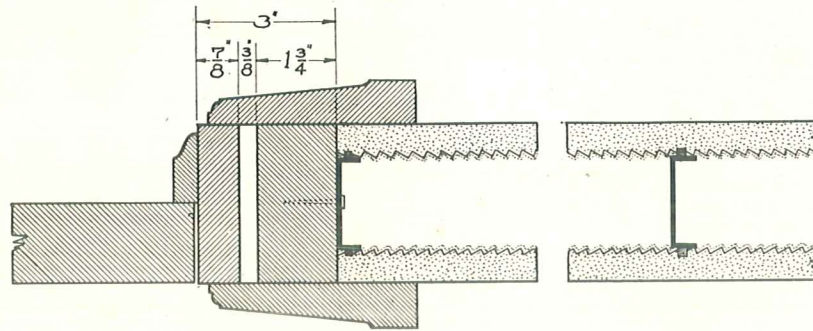
trim. Two small channels latticed will give the same results as the solid channel.





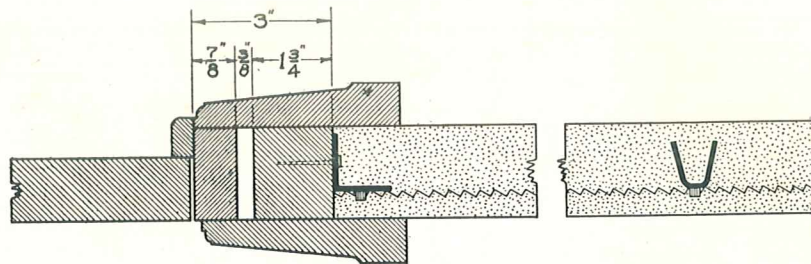
## Other Styles of Channel and Buck with Trim

For Thin, Hollow Partition. Also for Solid Partition With Angle at Jamb and U or T Studs on Which Expanded Metal Lath is Clinched or Wired



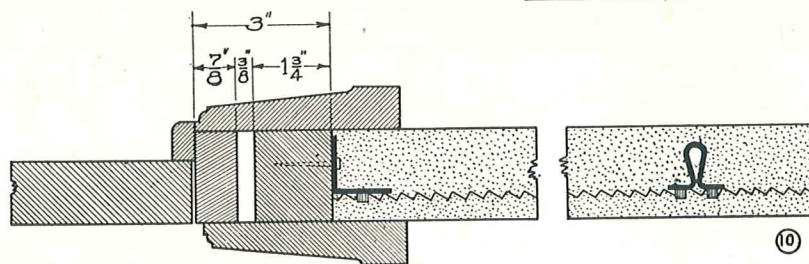
*Detail showing construction of door jamb for Berger's non-supporting channel stud partitions.*

*Scale  $\frac{1}{2}$ "=1-Inch*



*Detail showing construction of door jamb for Berger's non-supporting U-stud partitions with angle stud used at jamb.*

*Scale  $\frac{1}{2}$ "=1-Inch*



*Detail showing construction of door jamb for Berger's non-supporting T-stud partitions with angle stud used at jamb.*

*Scale  $\frac{1}{2}$ "=1-Inch*

Drawing No. 10

Light Rolled Channels or formed channels may be used for thin, hollow partition. All Metal Studs at jam should run from floor to ceiling with header

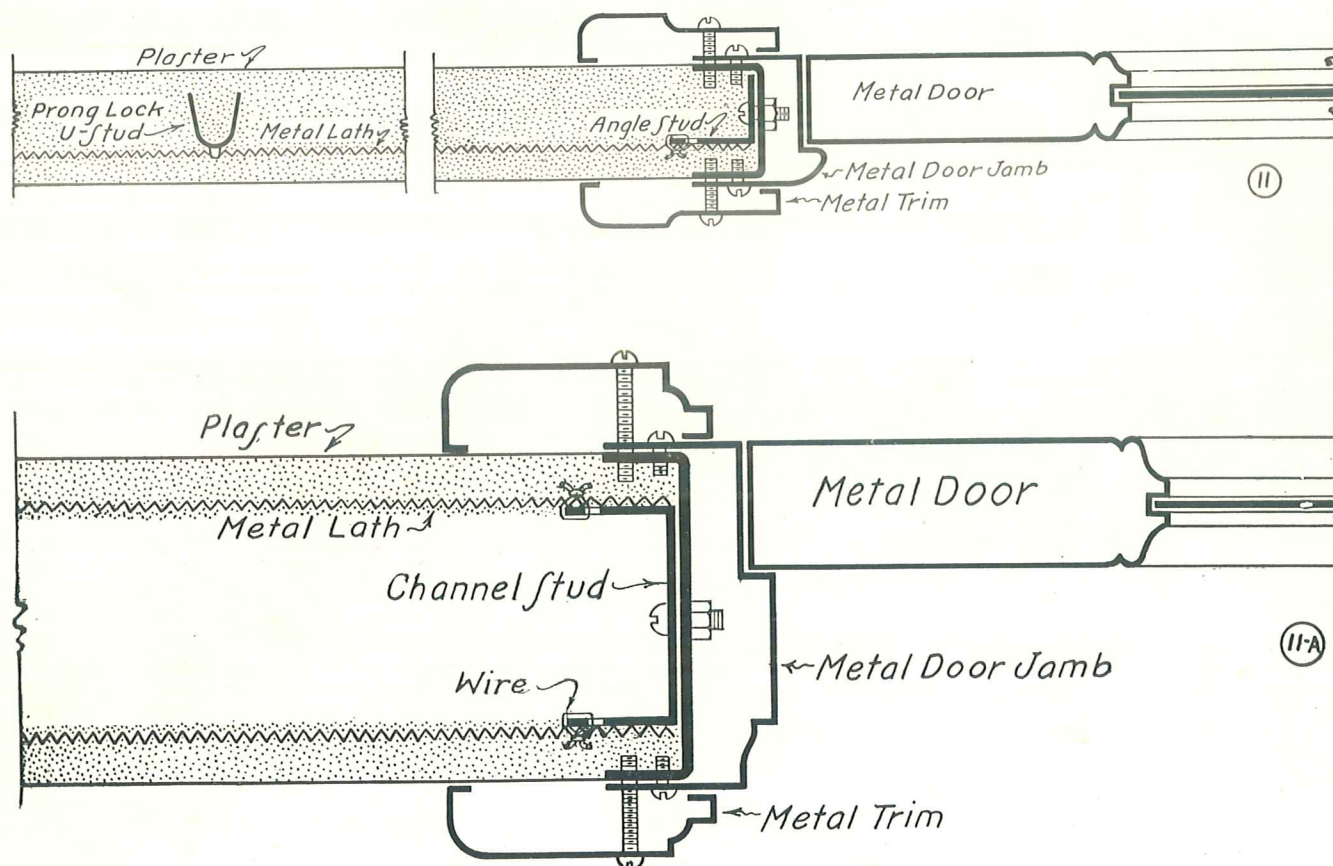
for top of door to which intermediate studs over door are fastened. The wood "Buck" runs to top of door only.





## Application of Metal Jamb and Trim

Showing Method of Constructing Solid and Hollow  
Partitions With Expanded Metal Lath



Drawings Nos. 11 and 11-A

Where metal doors and trim are used a saving can be effected by using Expanded Metal Lath on metal studs as the connections are easily made and less metal is required, on account of being able to fasten direct to the steel studs and because the partitions are much thinner than block partitions. The

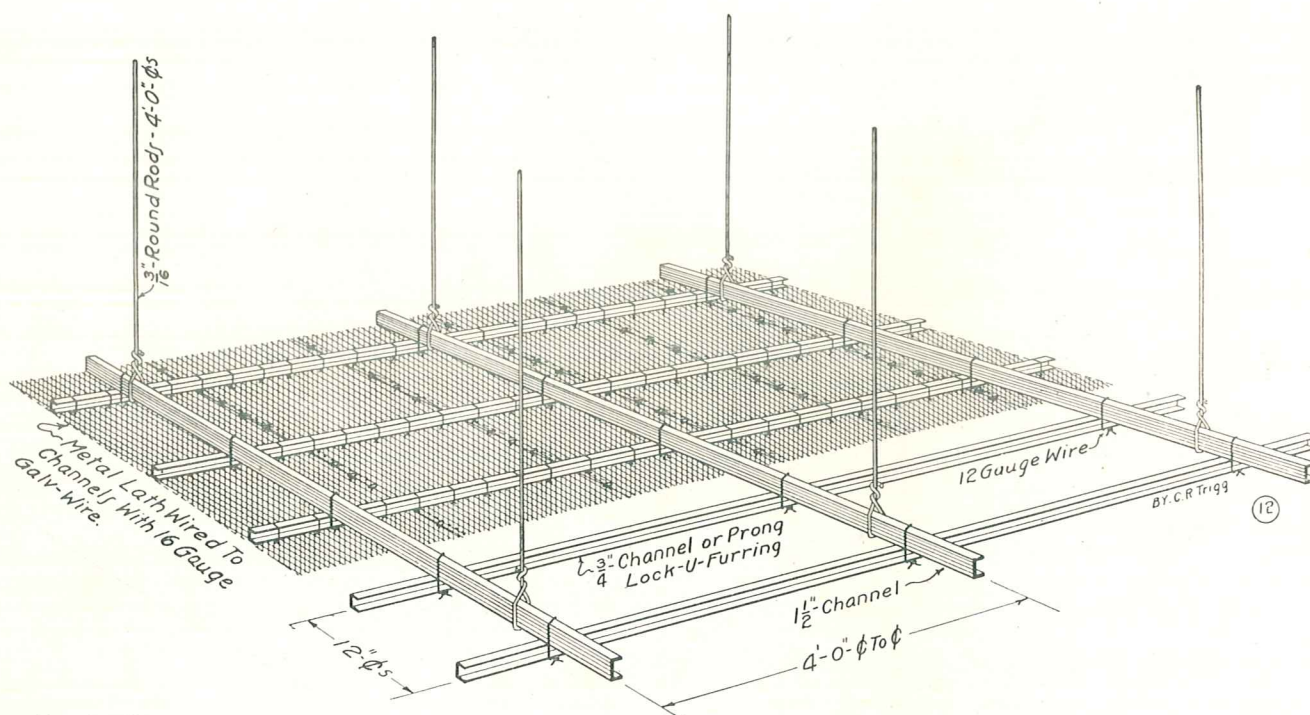
manner of fastening prevents frame from pounding loose and giving trouble. Note the different types of prong lock Pressed Steel Studs. The prongs provide at proper intervals a positive fastening for the Expanded Metal Lath.





## Suspended Ceiling

Used Under Pitched Roofs or Under Floor With Uneven  
Beams to Make a Level Ceiling



Drawing No. 12

Three-sixteenth-inch pencil rods or flat bands are hung from roof or floor. These rods or bands being imbedded in the concrete while pouring or attached to tile by means of toggle bolts. The rods or bands are of proper length to secure the required height for the finished ceiling. To them are fastened channels or angle bars about four feet apart. Bands are preferable to rods for the reason they are bolted to Ceiling Channels giving a positive fastening that will not let go under fire.

At right angles to the bars are fastened the furring members, preferably 1" Prong Lock U furring or  $\frac{3}{4}$ -inch channels, spaced about twelve inches on center. Number 24 gauge Expanded Metal Lath is

then secured to the furring or channels. Flat hanger bars, usually  $\frac{3}{4}$ " x  $\frac{1}{8}$ " straps, may be bolted to angle or channel bars and used instead of wire or rods for hangers.

Three-sixteenth-inch rods, 15 gauge channel runners and 20 gauge furring members will be heavy enough for an ordinary ceiling.

One-fourth-inch rods, 12 gauge channel runners and 18 gauge furring members will be heavy enough for a ceiling to support the weight of a workman on a runway.

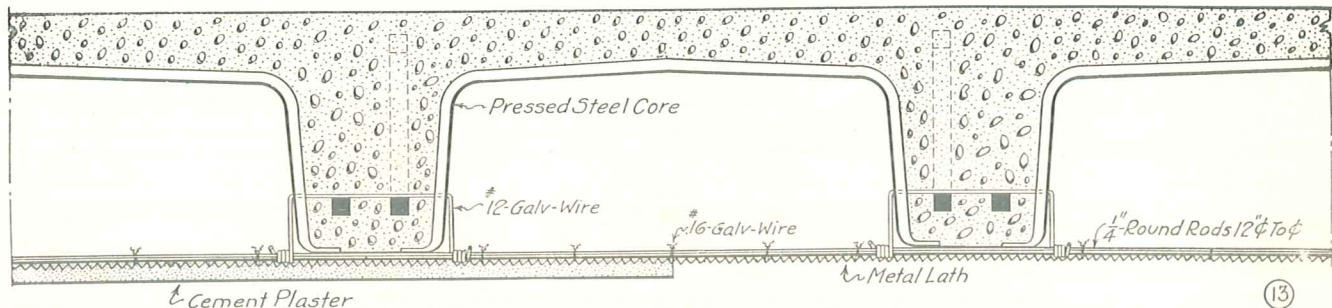
There are also types of suspended ceilings installed wherein band iron and light structural shapes are used to support the lath.





## Concrete Floor Construction

With Pressed Steel Cores For Displacing Useless Concrete.  
With Expanded Metal Lath Ceiling Beneath



Cross Section Showing Ceiling Construction With Furring  
Rods and Metal Lath.  
An economical type for Pressed Steel Core Construction.

Drawing No. 13

Wires (usually 12 gauge) are placed in the soffits of the beams while pouring; then after the concrete has hardened and centering or false work removed, furring rods or Prong Lock U Furring, spaced 12 inches on center, are fastened by means of these wires to the under side of concrete beams. Number 24 gauge Expanded Metal Lath is wired to the furring, making an even surface to receive the plaster.

The furring provides a space between the lath and concrete, thus preventing the plaster from adhering directly to the concrete and showing beam lines, due to the absorption of moisture by the dry concrete from the wet plaster.

This is a very practical and effective construction, especially where it is desirable to have all pipes and wires out of sight, as these can be placed before the furring is applied and will, of course, be hidden from view when the lath and plaster are applied. It is used extensively for schools, hotels, apartments, office buildings, warehouses, etc.

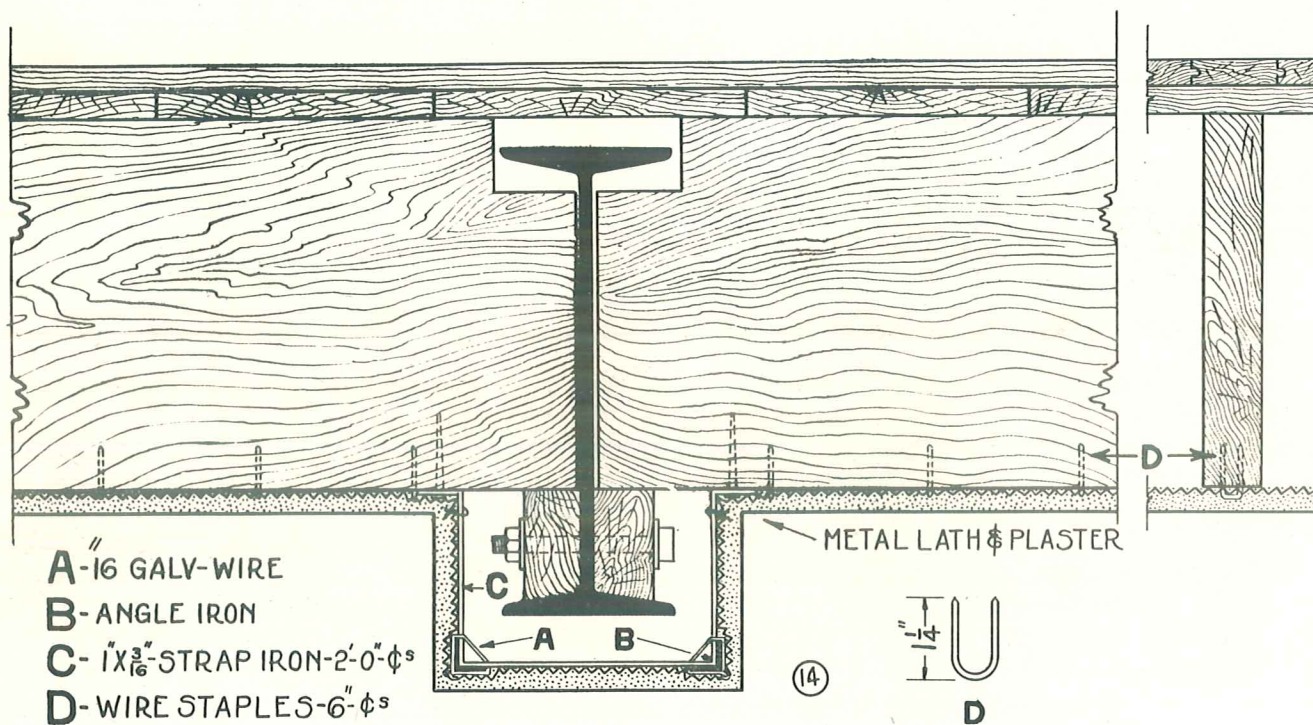
Berger's Pressed Steel Cores are formed from one piece of sheet steel and corrugated. Made in depths of 4", 6", 8", 10", 12" and 14". Lengths 30" and 36". Standard widths 20" and 25", gauges 26, 24 and 22. Heavy gauge cores may be removed and used over again indefinitely. Special Core data sent on request.





## Wood Floor Supported on Steel Beams

Showing Method of Protecting Lower Flanges  
of Beams With Expanded Metal Lath



DETAIL  
SHOWING  
METAL LATH SECURED TO WOOD JOISTS  
ALSO BEAM FURRING CONSTRUCTION.

Drawing No. 14

Expanded Metal Lath is the best material possible to use in protecting steel beams used in mill construction with wood joists. The Expanded Metal Lath used for plastered ceiling under wood joists is formed around steel beams projecting below ceiling line. After being plastered the beam covering is there to stay and will not fall off from the effects of heat and water, thereby exposing the

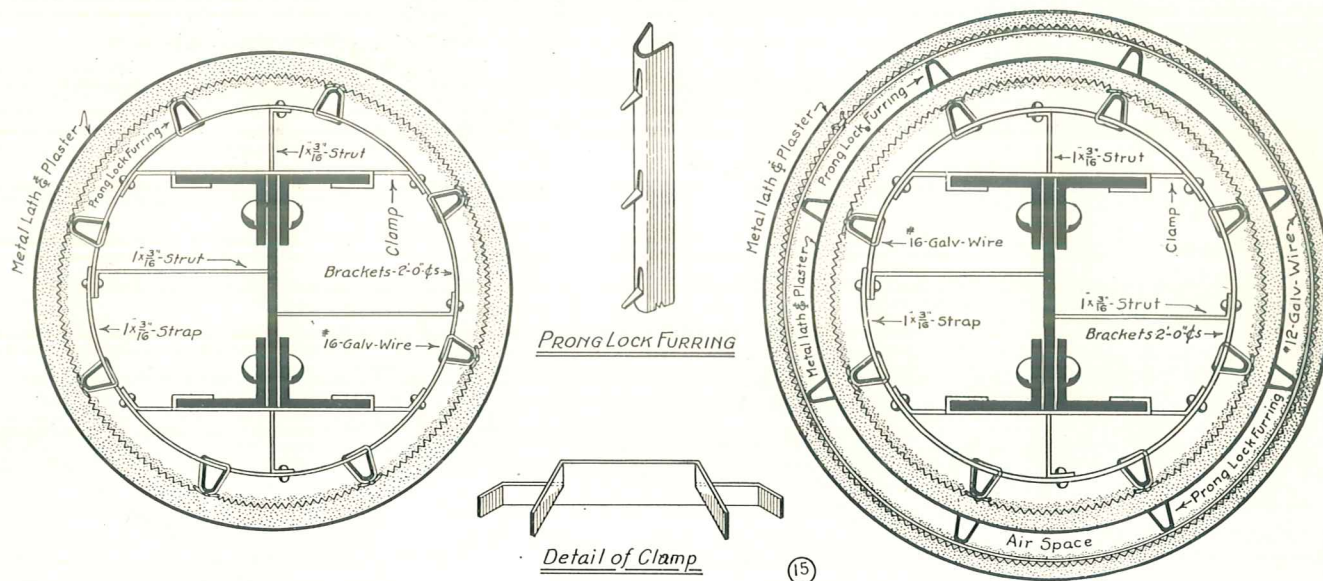
most vital part of beam. Expanded Metal Lath is securely fastened to the joists and in turn is imbedded in the mortar, making a homogeneous reinforced slab which will not break up or fall away. Tests prove that Expanded Metal Lath and plaster on wood joists or studs will resist the most intense fire for over an hour without the wood igniting.





## Round Column Protection

Showing Expanded Metal Lath Applied to Protect Round Built-Up Columns  
of Either the Single or Double Air Space Type



DETAIL  
Showing  
Single Wall Column Protection.

DETAIL  
Showing  
Double Wall Column Protection.

Drawing No. 15

Note the universal adjustable clip or bracket for supporting furring members to which lath is fastened. This method is simple and practical and gives the greatest possible percentage of security from fire and water.

In the San Francisco fire, Expanded Metal Lath and plaster gave a good account of itself in protect-

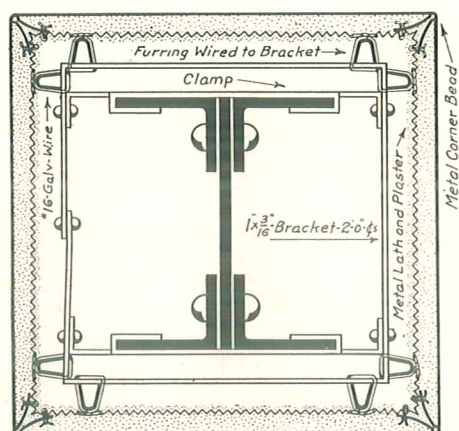
ing columns—both steel and cast iron. This relates to single column covering but where double protection or two layers are used with air space between it is practically impossible for fire to work through. The plaster cannot get away from the lath as the key holds it tight. Twenty-four gauge lath should be used for this class of work.





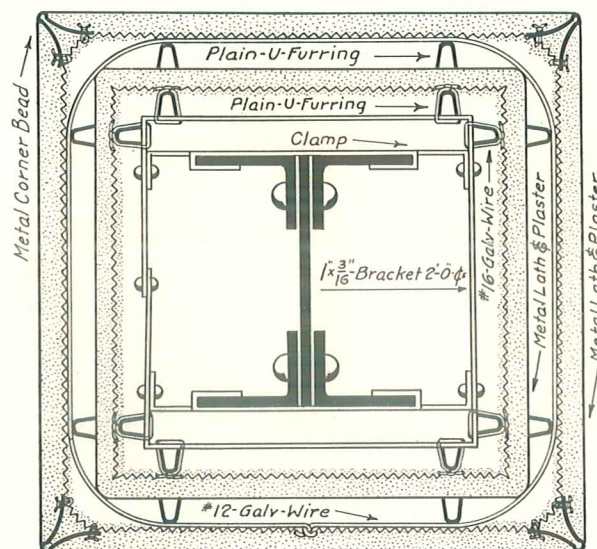
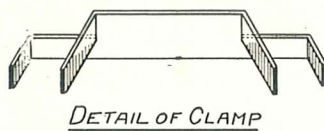
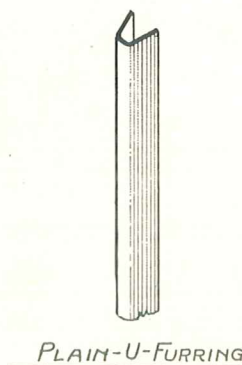
## Square Column Protection

Showing Expanded Metal Lath Applied to Protect Square Built-Up Columns  
of Either the Single or Double Air Space Type



DETAIL  
Showing

Single Wall Column Protection.



DETAIL  
Showing

Double Wall Column Protection.

Drawing No. 16

This is the lightest type of column protection that can be used. The Lath and plaster make a homogeneous reinforced casing which will not be broken down by fire and water. Note method of applying Metal Corner Beads to protect plastered corners.

Simple clamps are fastened to the flanges of the column and support the strap iron brackets to which are fastened the plain U Furring strips. The first layer of Expanded Metal Lath and plaster then is applied. In case of double wall construction, as shown in the right-hand drawing, another set of furring strips is installed and the outer wall of Expanded Metal Lath and plaster applied.

The column is the most vital of all parts of the construction as it must support the building and the loads to be carried; therefore, every precaution should be taken to provide proper protection against fire and water. The intense heat generated when a fire occurs within a building will weaken the unprotected column to the point where failure occurs.

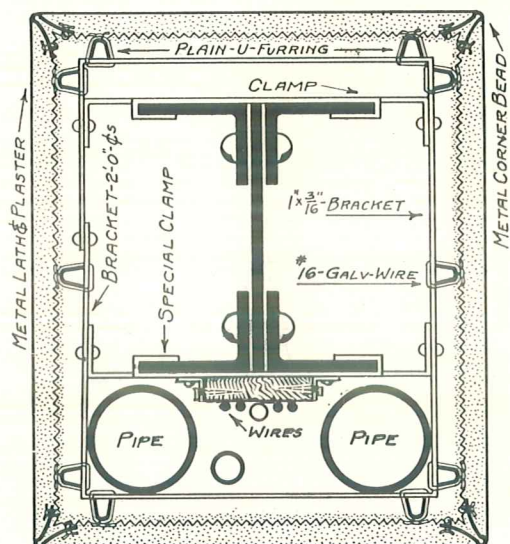
The construction shown above is thoroughly efficient and reasonable in cost. It is used extensively and has been proven through actual practice to be one of the best methods of column protection.





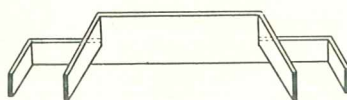
## Providing for Pipes and Wires in Columns

Showing the Adjustability and Flexibility of Expanded Metal Lath  
to Meet the Demands for Special Treatment

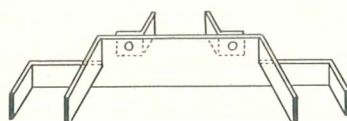


### DETAIL

Showing Column Protection  
and Pipe Chase.

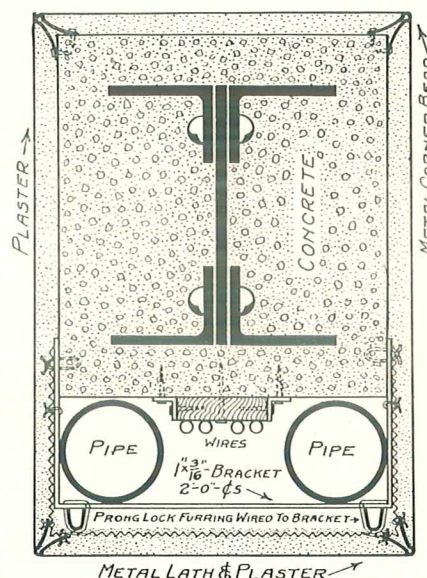


DETAIL  
Showing Plain Clamp.



DETAIL  
Showing Special Clamp.

(17)



### DETAIL

Showing Concrete Column Protection  
and Furring For Pipe Chase.

Drawing No. 17

These illustrations show examples of the adjustability and flexibility of Expanded Metal Lath to meet the numerous demands for special treatment of members that cannot be taken care of as efficiently in any other manner.

Solid concrete in itself is a good material to use in the protection of steel against fire and water, but the cost of applying it is much greater than Ex-

panded Metal Lath and plaster and its adaptability is not nearly so great. Furthermore, the dead air space is lost, which takes away one of the important elements in good fire protection.

When concrete is used, as shown in the right-hand drawing, Expanded Metal Lath is effectively employed to provide conduits for pipes.

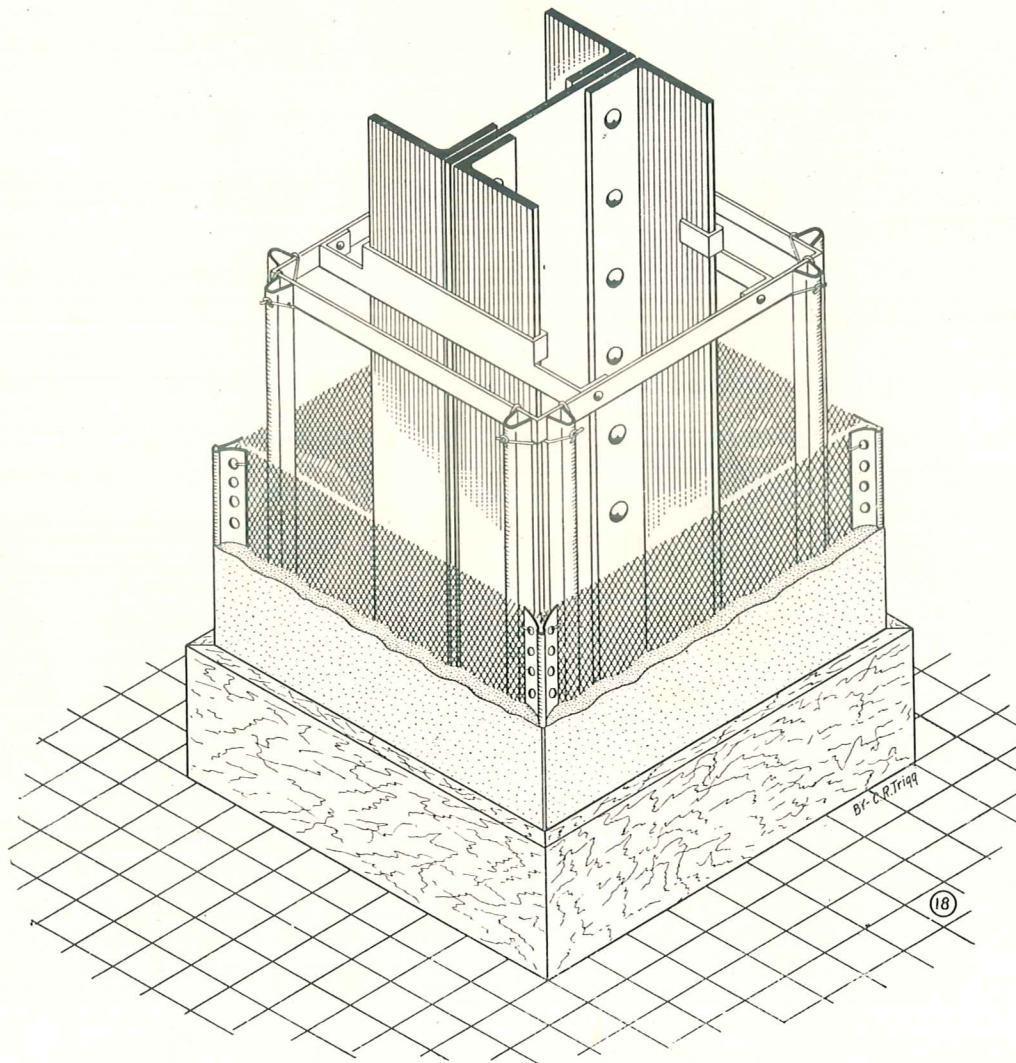
Twenty-four gauge Expanded Lath should be used.





## Protection of Supporting Column Against Fire and Water

Isometric Drawing Showing the Practical Application of  
Expanded Metal Lath and Cement Plaster



ISOMETRIC DRAWING  
Showing Column Protection.

Drawing No. 18

This picture is intended to illustrate clearly the most effective method of protecting a steel column. Note the universal clips, as they play an important part. To these clips are fastened the vertical furring members which support the lath.

It is well to protect the corners with galvanized Metal Corner Beads.

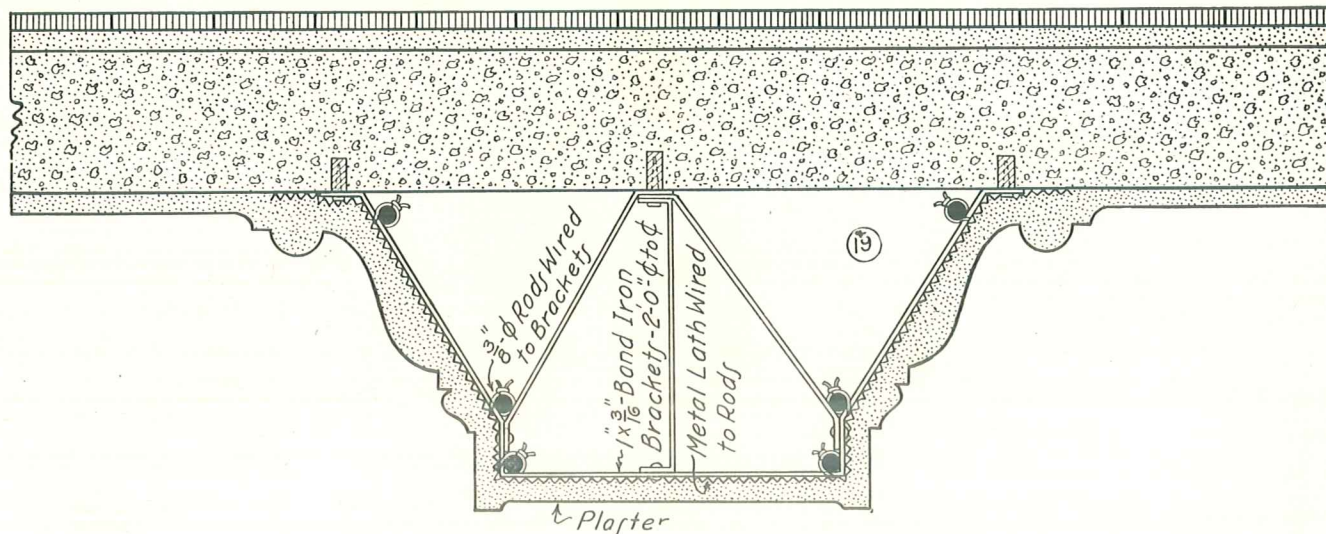
The whole method of construction is simple, practical and easily and quickly erected. Round rods may be used in place of the V-shaped furring. The same method shown for square column protection can be employed for round columns just as effectively. Of course, with the round columns the Metal Corner Beads would not be required.





## Practical Method of Erecting False Beams

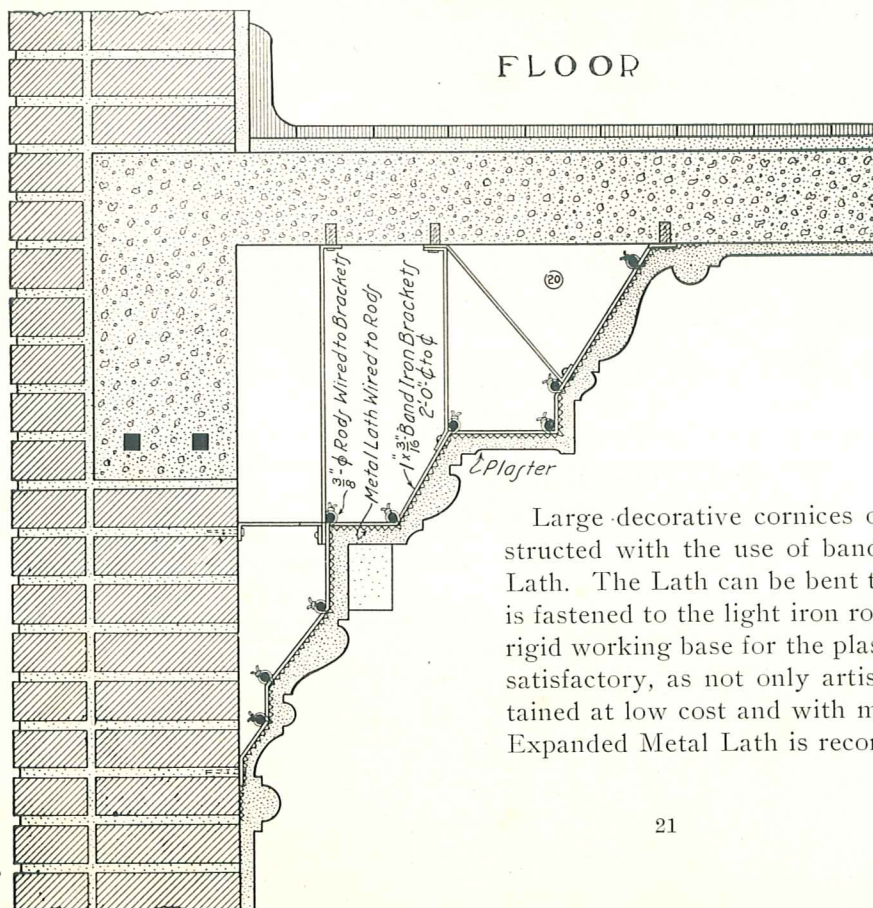
Using Braces and Furring Rods Covered With Expanded Metal Lath



Drawing No. 19

False beams are very easily run by using flat band iron for bracing or brackets on which are wired round rods longitudinally, to which in turn the Expanded Metal Lath is wired, making a rigid,

true base to plaster. The weight is negligible as compared with massive appearance that may be obtained.



Drawing No. 20

FLOOR

## Ornamental Cornice

Built up with braces and brackets of flat band-iron to which are wired Furring and Stiffening Rods.

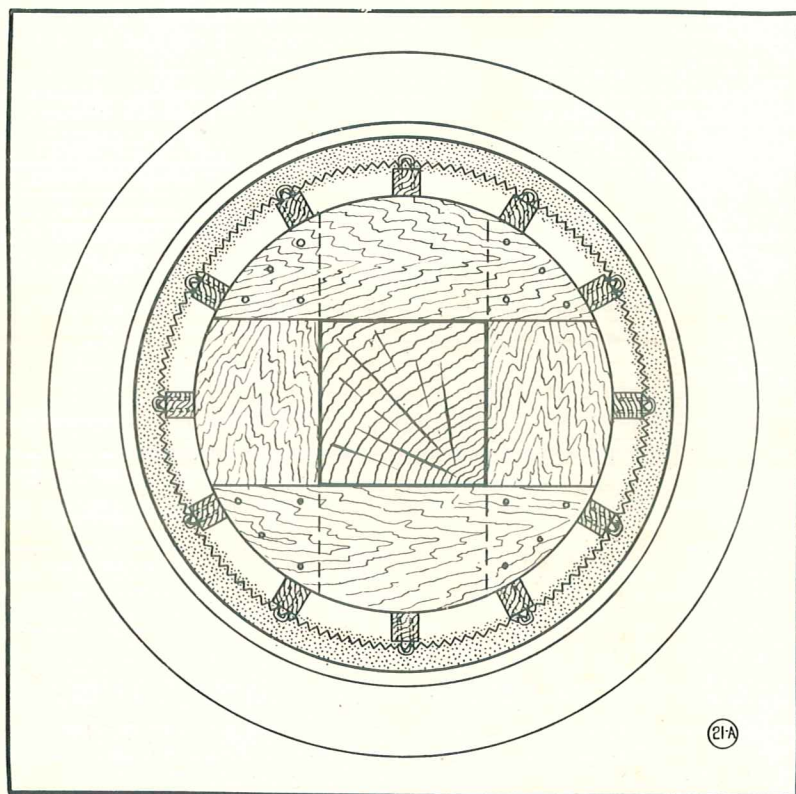
Large decorative cornices of any design desired are easily constructed with the use of band iron brackets and Expanded Metal Lath. The Lath can be bent to conform to any detail of design. It is fastened to the light iron rods by means of wires, forming a true, rigid working base for the plasterer. The results obtained are most satisfactory, as not only artistic design but ample strength is obtained at low cost and with minimum weight. No. 26 or 24 gauge Expanded Metal Lath is recommended for this purpose.





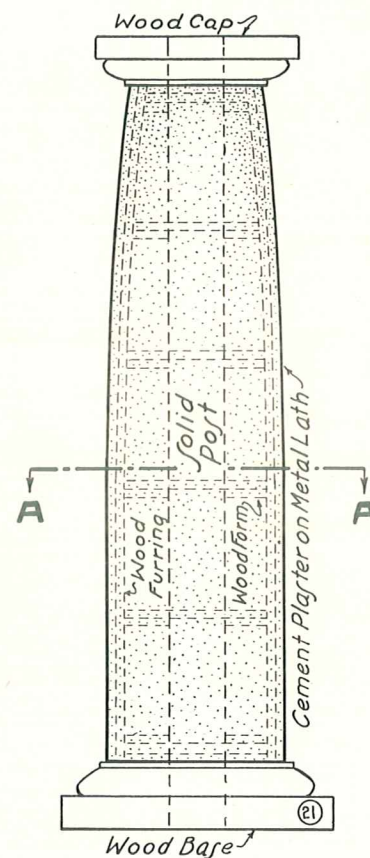
## Method of Constructing Porch Column

With Wood Core Covered With Expanded Metal Lath



### SECTION-AA

Drawings Nos. 21 and 21-A



The accompanying drawing shows a practical and easy method of constructing a porch column. The supporting member carries at intervals cores of any size or dimension required to give desired lines to column. Over the cores vertically are nailed small strips of wood which will conform to size of cores and outline the design of the column. The Expanded Metal Lath is stapled to these vertical strips, and in turn plaster is applied to Lath, making a substantial, effective column.

One-half inch Prong Lock U furring can be used to better advantage than wood strips. Staple the U furring lightly to wood core. It allows for ex-

pansion and contraction of wood and prevents cracking of stucco. The prongs on the U furring secure the Expanded Metal Lath.

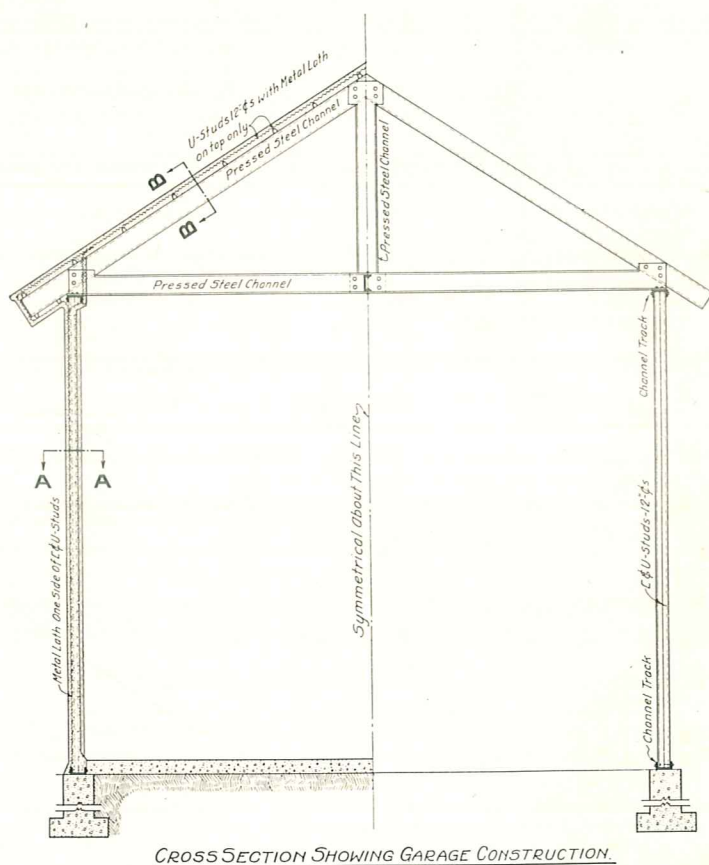
In stucco residence construction this type of porch column is being largely used, as it is adapted to the working out of any design desired. By varying the outline of the wood cores the shape of the finished column is controlled. Any desired finish may be obtained by proper treatment of the last coat of plaster. This may be either smooth, sand, stippled, spatter-dash, exposed aggregate, pebble-dash or rough-cast finish, whichever is desired to harmonize with the architecture of the building.





## Design of Stucco Garage

Constructed of Steel Members and Expanded Metal Lath



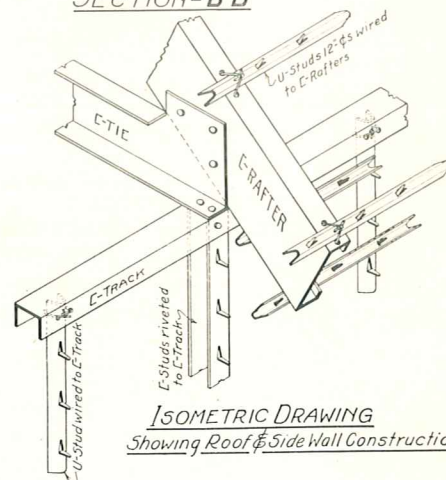
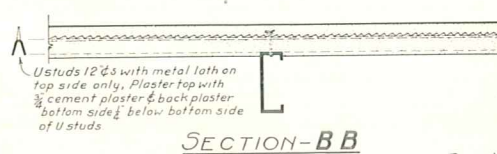
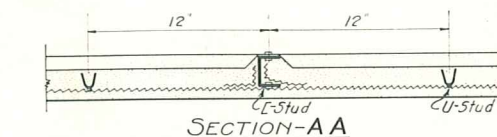
Drawing No. 22

This type of garage is attractive in appearance, substantial and fire-resisting. The mason who lays the cement floors can apply the stucco and concrete to the walls and roof at the same time, thus saving confusion and delay occasioned sometimes by the employment of too many trades on a job.

It does not cost much more to construct a fire-resistive garage and this small extra cost is more than offset by the protection given not only to the

owner's automobile but the surrounding buildings. The sense of security afforded by having a building which offers no food for flames plus the satisfaction of having a more artistic and attractive structure makes this type of garage construction appeal strongly to building owners.

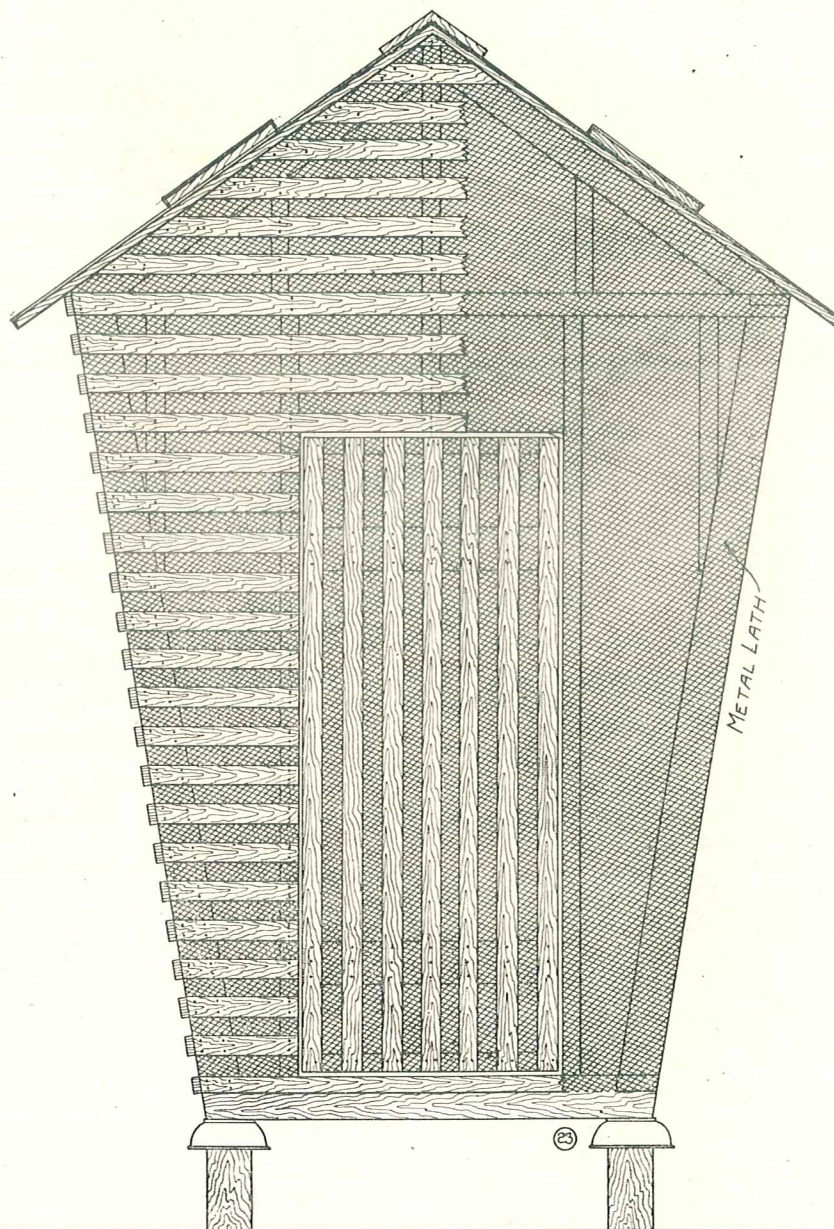
Stucco construction easily adapts itself to the surroundings and can be made most harmonious. The above design is simply one suggestion to show construction details.





## Corn Crib Covered with Metal Lath

The Expanded Metal Lath Prevents Rats and Mice From  
Entering and Destroying the Corn



Drawing No. 23

The use of Expanded Metal Lath in covering granaries will prevent the great loss that is now prevalent from rats and mice. We are so accustomed to loss from this source that few of us realize the immensity of the waste (from 7 to 10%). Statistics show that at a value of \$1.50 a bushel one rat will destroy \$5.46 worth of corn a year. The cost of applying Expanded Metal Lath is comparatively little when the

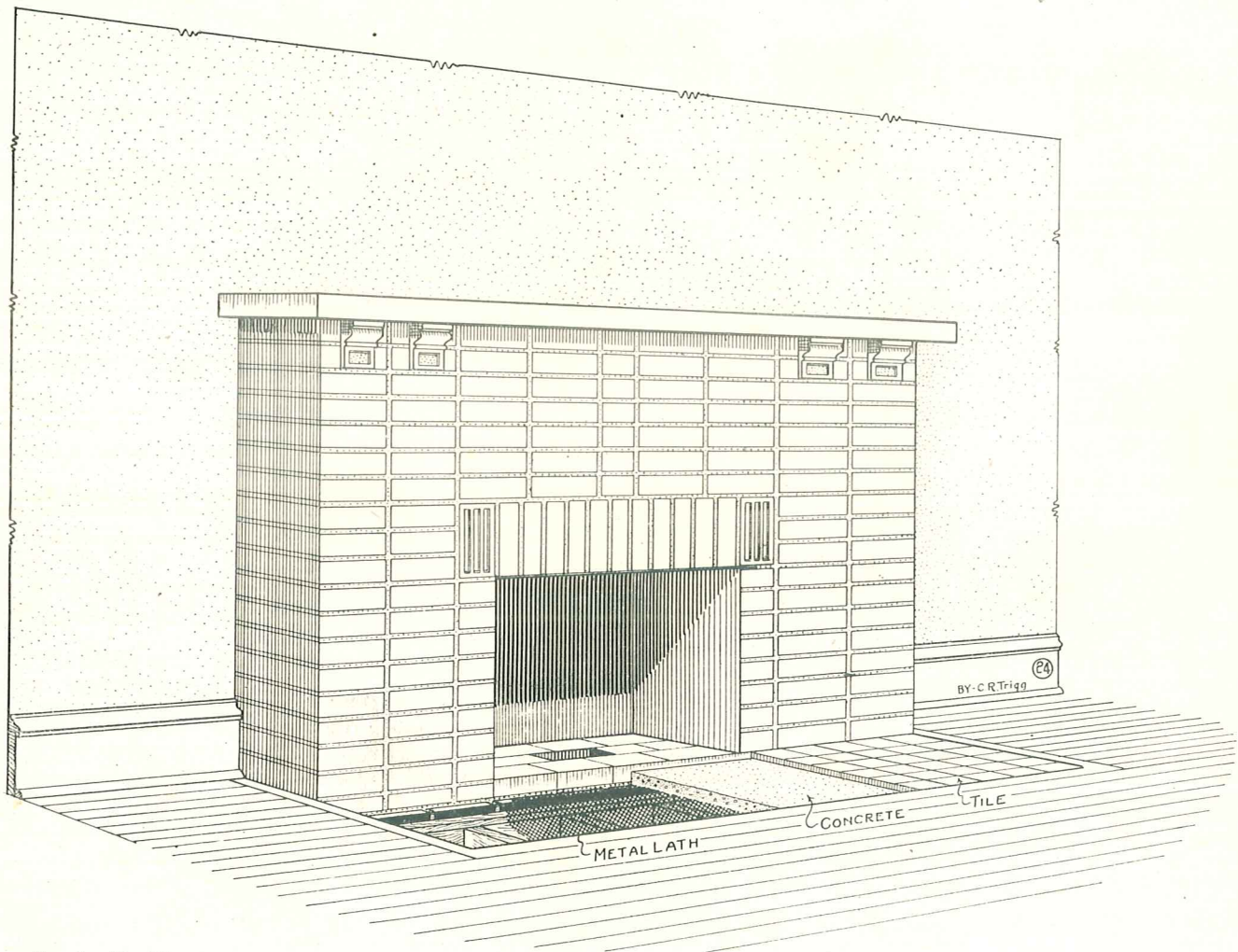
saving is considered. After the frame work has been erected 22 gauge Expanded Metal Lath should be applied with 4-penny galvanized nails or  $1\frac{1}{4}$ " staples over which the wood strips are securely fastened to retain the corn; or sheathing is used in place of strips if wheat is to be stored. When exposed to weather, galvanized steel or painted Toncan Metal Lath should be used.





## Construction of Fireplace Hearth

Expanded Metal Lath in Front of Fireplace  
to Support Concrete and Tile



Drawing No. 24

The old method of building a false wooden floor to support concrete under tile is faulty and not good construction. It is hazardous because it allows the concrete to crack, thereby loosening the tile, opening up the joints and making a bad appearance.

Expanded Metal Lath reinforces the concrete and prevents cracks and at the same time is fire-resistant.

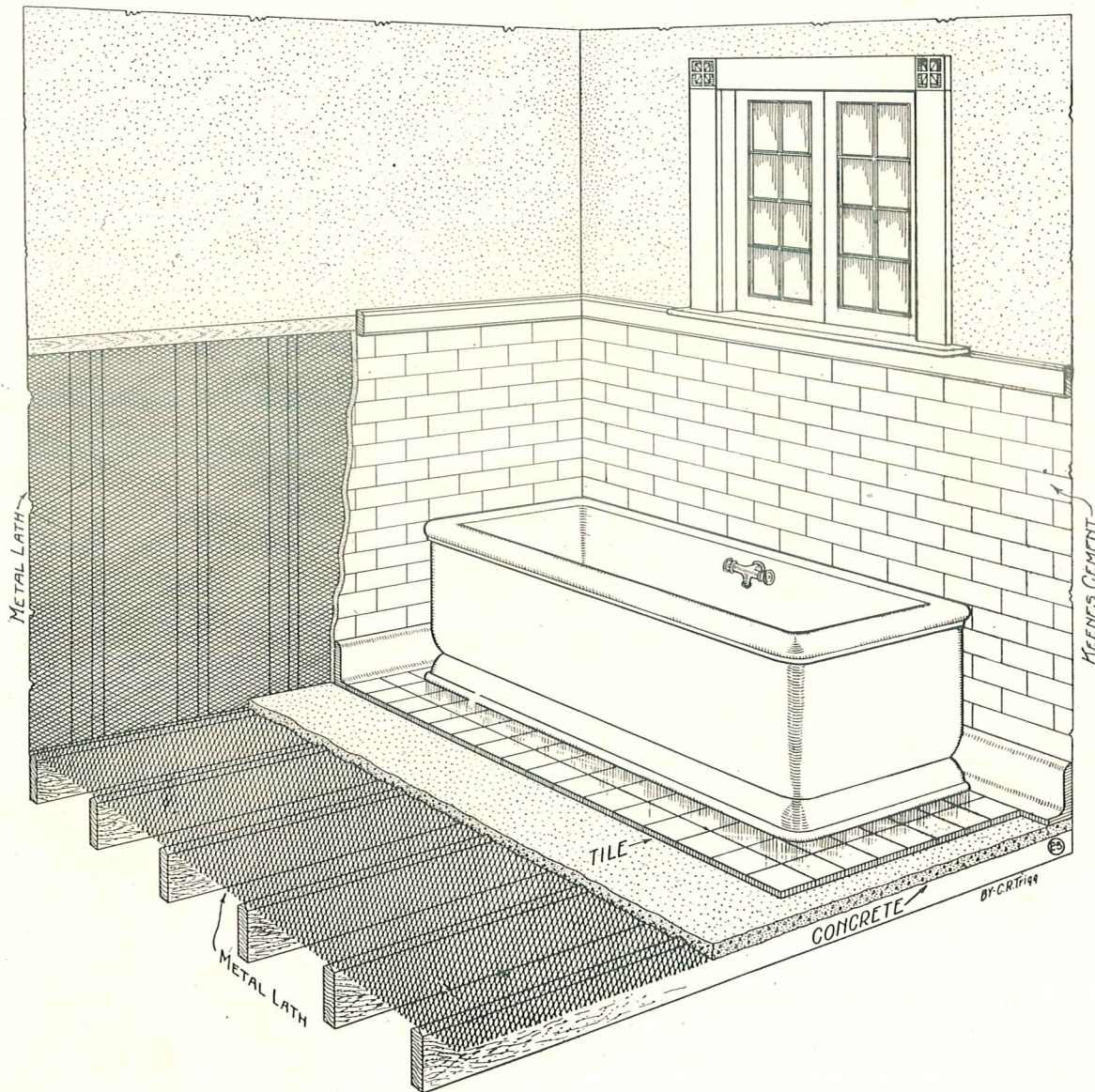
The joists may be chamfered or notched out the width of the hearth to allow dropping of lath low enough to receive concrete and tile so that the tile will finish flush with finished wood or cement floor. The lath will span from joist to joist and support concrete, making an effective reinforcement.





## Bath Room Side Walls and Floors

Expanded Metal Lath Used Under Tile Floor to Support Concrete.  
Also on Side Walls to Take Tile and Plaster Finish



Drawing No. 25

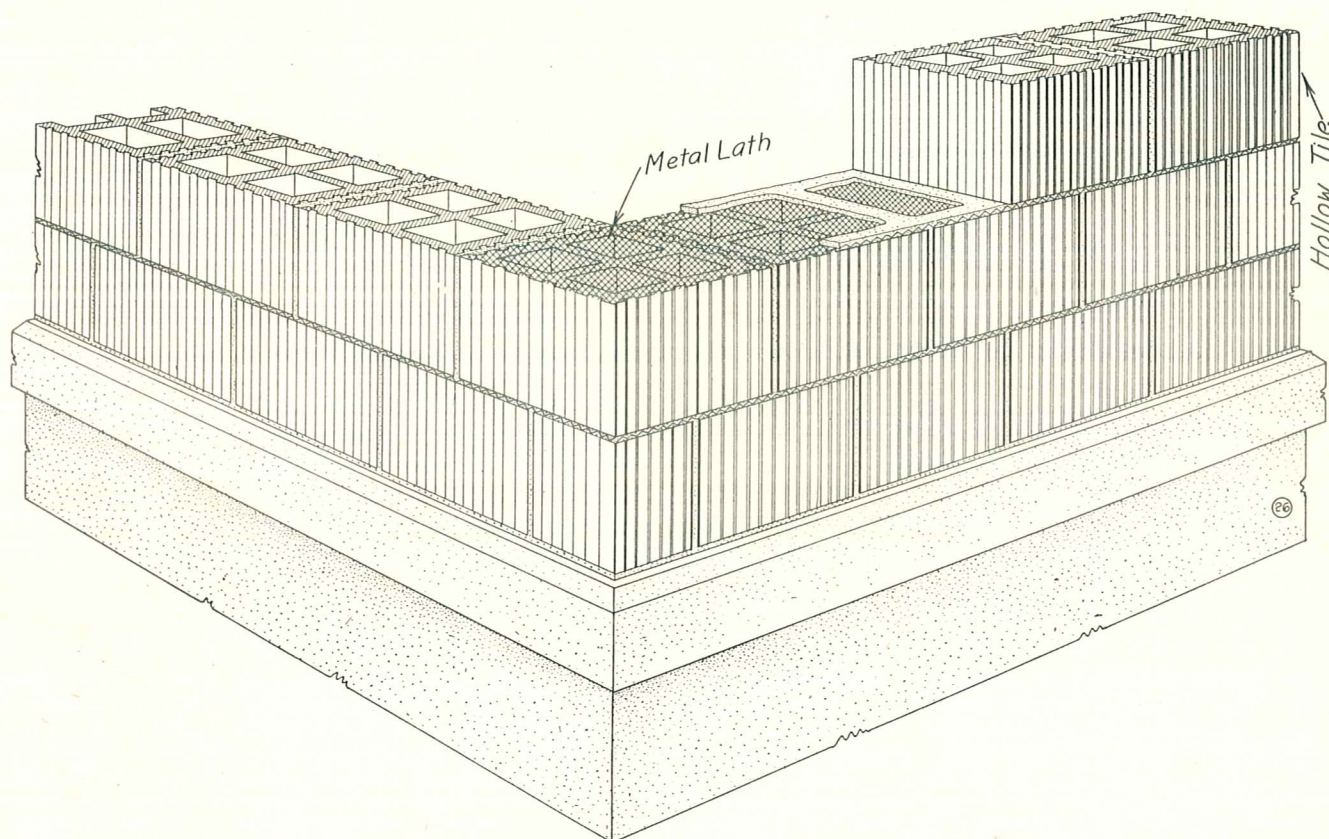
There is nothing more unsightly and unsatisfactory than cracks in the bath room floor or side walls. Usually the tile are white and the dirt settles in the cracks, accentuating the defects. Cracks can be prevented by the use of Expanded Metal Lath to reinforce the concrete base, as the lath is not

subject to excessive contraction and expansion. Therefore, it does not set up any stresses or strains, but, on the other hand, bonds and reinforces the concrete so that the floor and side walls remain in perfect condition.



## Hollow Tile Wall Reinforcement

Expanded Metal Lath Placed Between Layers



Drawing No. 26

Expanded Metal Lath cut in strips and laid full width of wall between each row of hollow tile blocks securely ties the wall together, thus causing uniform action of stresses and preventing uneven settlement and unsightly cracks in stucco walls.

In laying up the ordinary hollow tile wall of buildings for stucco there always has been consider-

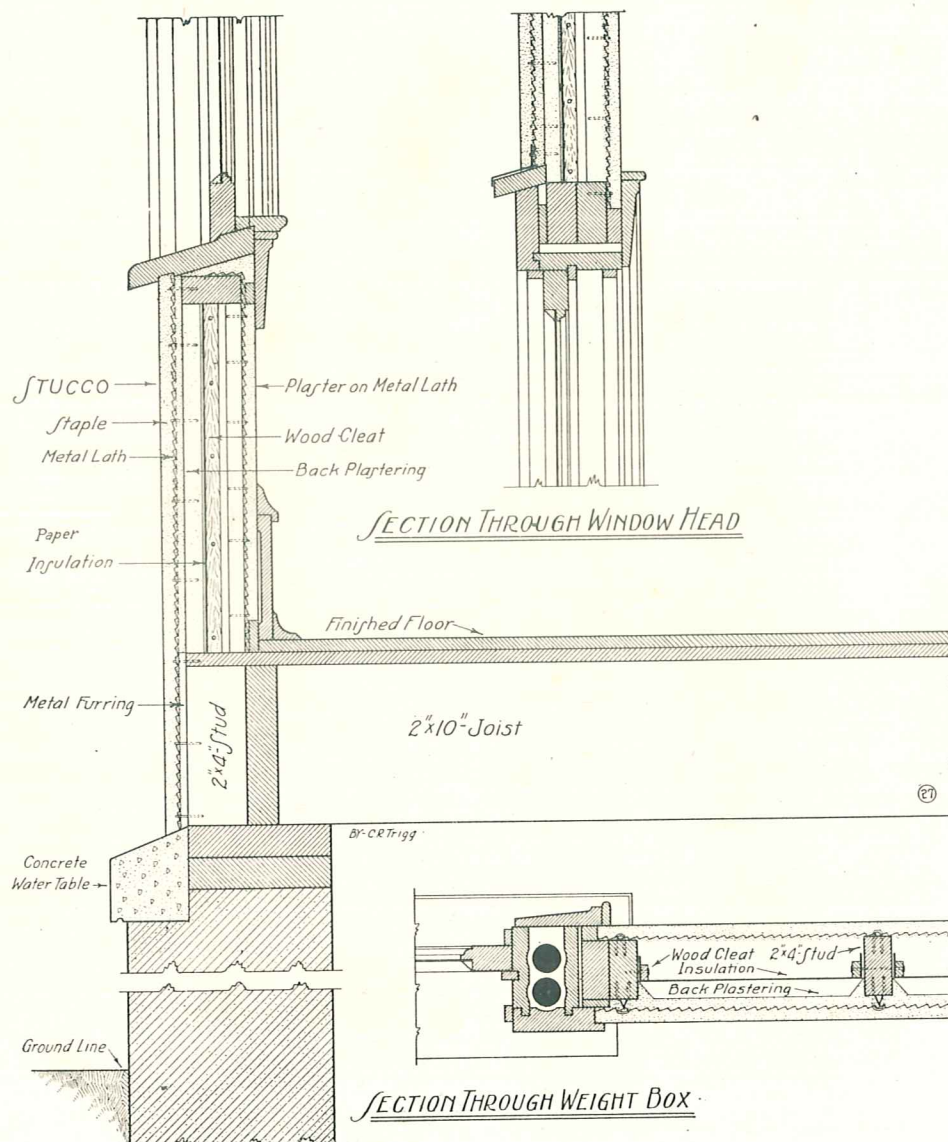
able waste of mortar which would drop into the tile. Such waste is prevented by the use of these Expanded Metal Lath strips.

This method is recommended by the Associated Metal Lath Manufacturers and leading tile manufacturers and is considered best practice by architects and contractors.



## Standard Stucco Construction on Metal Lath

As Recommended by The Associated Metal Lath Manufacturers



Drawing No. 27

Illustration shows how to apply metal furring strips or  $\frac{1}{2}$ " Prong Lock U Furring down face of the studs; method of setting out frames and casings to be in proper relation to finished plaster; also back plaster and insulating paper between studs. The latter, however, is not absolutely necessary to obtain good results. The use of Prong Lock Furring strips guarantees fastenings of lath at proper points.

A test conducted by the Bureau of Standards at Washington, D. C., has developed the fact that Ex-

panded Metal Lath applied directly to  $\frac{1}{2}$ -inch Metal Furring on Studs and back plaster without sheathing gives better results than any other construction.

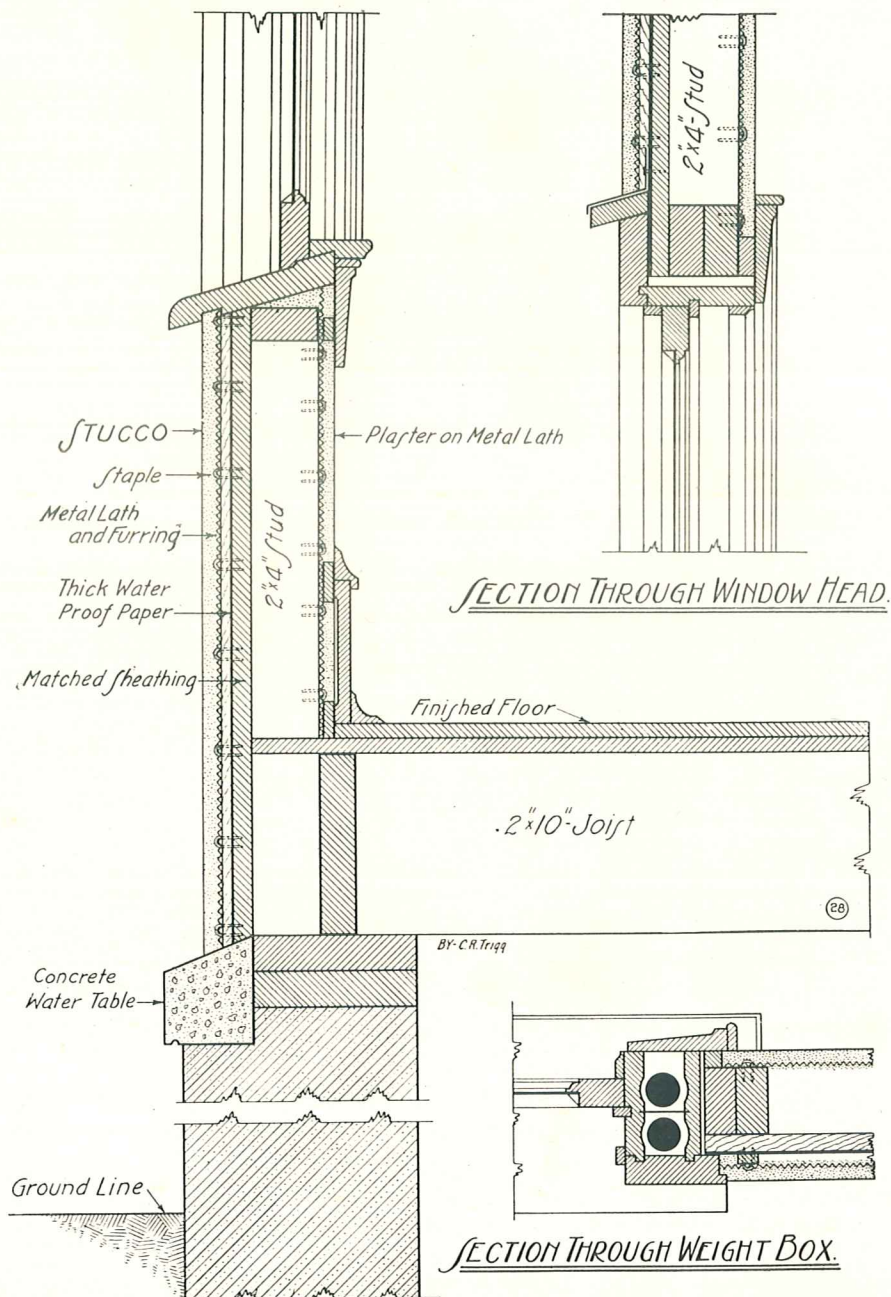
A test house carrying 56 panels of different types of stucco construction was erected in the fall of 1915. A report of the comparative ratings made in bulletin No. 70 issued by the Department of Commerce at Washington, D. C., shows that this type of construction is most successful from all standpoints. We will send a digest of this bulletin on request.





## Stucco Construction Over Sheathing

Showing Practical Application on Expanded Metal Lath



REPRESENTED BY  
JOHNSON-BIENER CO., INC.  
315 CITIZENS BANK BLDG.  
NORFOLK, VIRGINIA  
TELEPHONE 8487

Drawing No. 28

Frames and mouldings should be rabbited  $\frac{3}{4}$ " on the edge that comes in contact with the plaster to form a water break, care being taken to have frames and fascias project at least  $\frac{3}{4}$ " beyond plaster.

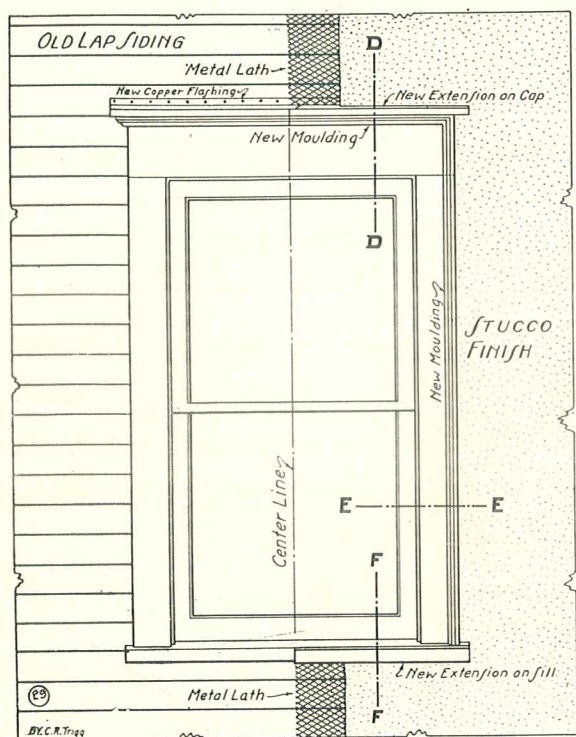
Spatter-dash or rough-cast will give the most pleasing and satisfactory finish.

See page 31 for other details which apply here-also.

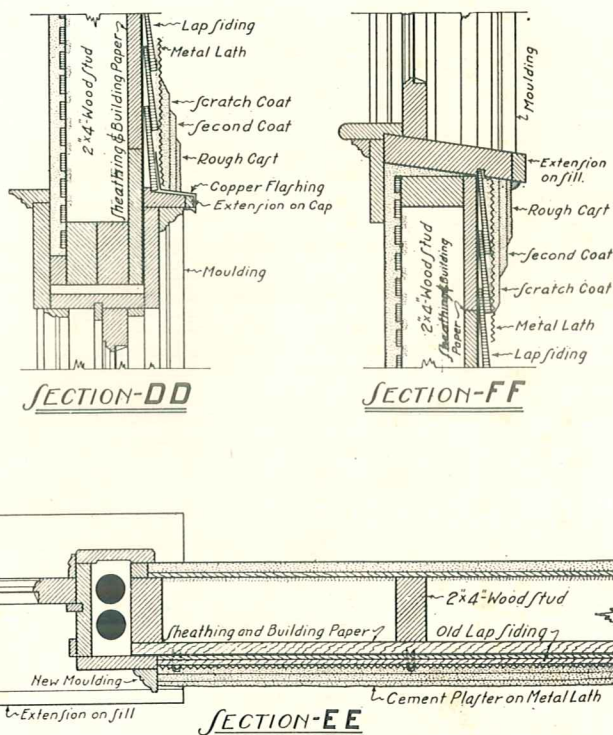


## Stucco Overcoating on Lap Siding

Expanded Metal Lath Applied Directly Over the Old Siding



Drawing No. 29



Furring strips about  $\frac{1}{2}$ " deep should be applied about 1 ft. apart for best results. (See page 31.) However, fair results may be had by nailing lath direct to siding. Mortar should be forced through mesh of lath to flatten out against siding and cover lath on back.

Note method of applying moulding to old frames to build them out to proper depth for stucco.

In remodeling an old house, using Expanded Metal Lath according to the suggestions in the il-

lustration not only provides an economical method of improving, modernizing and beautifying the structure but also makes it more substantial, warmer in winter, cooler in summer and reduces the danger of fire due to external ignition.

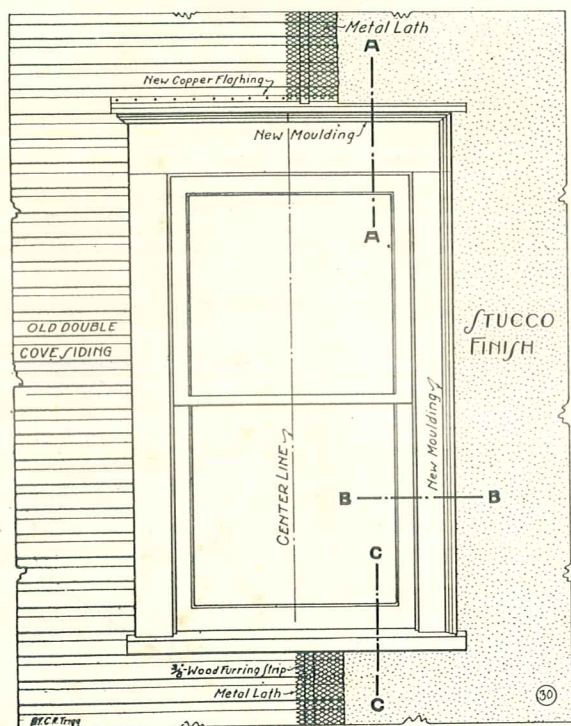
No other method of remodeling will give the pleasing effects obtainable with stucco and it is by far the cheapest method. See page 32 for stucco specification.



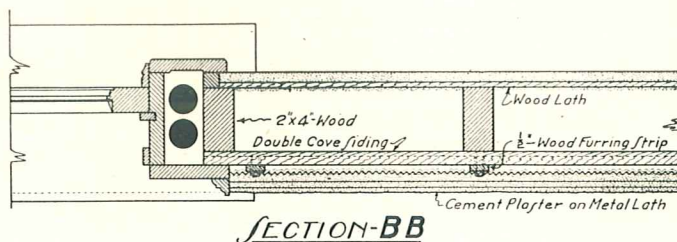
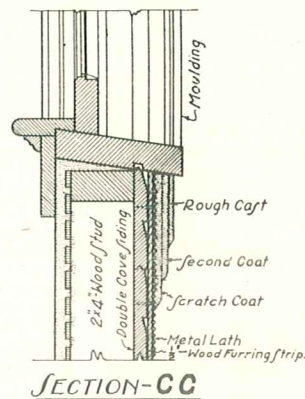
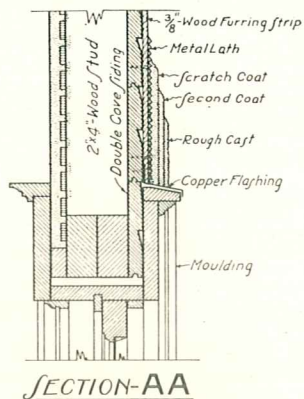


## Stucco Overcoating on Cove Siding

Expanded Metal Lath Applied Directly Over Old Siding



Drawing No. 30



The proper procedure when overcoating an old building is first to tack  $\frac{1}{2}$ -inch furring strips about one foot apart over the siding. To the furring the lath is fastened at right angles by the use of No. 14 gauge iron staples  $1\frac{1}{2}$  inches long. These are fastened through the mesh of the lath astride the furring strip and driven down tight. They should be spaced about 4 or 5 inches apart. One-half inch Prong Lock U Furring is frequently used for the furring strips as the prongs provide an easy means of properly securing the metal lath.

If edges of lath forming lap between furring strips are not taut the edges should be wired. The mortar is forced through the mesh of the Expanded Metal Lath so that it flattens out on the siding and completely imbeds the lath.

Before plaster is applied new moulding is added to the frames, as shown in the picture on this page, in order to bring the frames out in proper relation with the finished plaster or stucco. They should extend at least  $\frac{3}{8}$  inch beyond the plaster and it is better when they extend  $\frac{1}{2}$  inch.





## Revised Standard Specifications For Exterior Plastering (Stucco)

As compiled by the Associated Metal Lath Manufacturers, in harmony with practice recommended by the Portland Cement Association and in conference with representatives of the U. S. Bureau of Standards.

Paragraphs marked "Type A" apply only to back-plastered walls, without sheathing (see pages 28 and 32)

Paragraphs marked "Type B" apply only to walls with sheathing (see pages 29 and 33).

All other paragraphs apply to both forms of construction.

### MATERIALS

1. **Cement.** The cement shall meet the requirements of the Standard Specifications for Portland Cement of the American Society for Testing Materials.

2. **Fine Aggregate.** Fine aggregate shall consist of sand, or screenings from crushed stone or crushed gravel. It shall be well graded from fine to coarse particles, passing when dry a screen having eight (8) meshes to the lineal inch and should be clean and free from organic or other objectionable foreign matter.

3. **Lime.** Only hydrated lime of a standard brand shall be used. This eliminates the possibility of unslaked lime particles appearing in the mixture.

NOTE: If added dry, the lime should be first mixed with the cement, and this mixture screened to make sure that no lumps get into the mortar. Or the lime may first be put in water, forming a milky liquid (which liquid must be free from lumps), and then added to the mortar as it is mixed.

4. **Hair of Fibre.** There shall be used only first quality long cow hair, free from foreign matter, or a long cocoanut fibre well combed out.

5. **Coloring Matter.** Only mineral colors shall be used, but no coloring matter which is affected by lime, Portland Cement or the elements is permissible.

6. **Water.** Water shall be clean, free from oil, strong alkalies or vegetable matter.

7. **Mixing.** The ingredients of the mortar shall be thoroughly mixed to a uniform color, sufficient water added to obtain the desired consistency and the mixing shall continue until the cement and lime are uniformly distributed and the mass is uniform in color and homogeneous.

The hair or fibre shall be added during the process of wet mixing.

8. **Measuring Proportions.** Methods of measurements of the proportions of the various ingredients including the water shall be used which will secure separate uniform measurements at all times. A sack of cement (94 lbs. net) is assumed to contain

1 cubic foot. Hydrated lime shall be assumed to weigh 40 pounds per cubic foot. (An 8-quart pail holds approximately 10 lbs.)

9. **Quantity.** There shall not be mixed at one time more mortar than will be used within one hour. Mortar which has begun to stiffen or take on its initial set shall not be used.

10. **Mixing.** If hand mixed, the mixing shall be done in a clean, water-tight box and the materials shall be turned until they are homogeneous in appearance and color. If machine mixed, a batch mixer suitable for mortar should be used and the mixing continued for at least one minute.

11. **Consistency.** The materials shall be mixed so as to provide sufficient water to insure a proper binding and a dense mortar free from voids.

12. **Retempering.** Retempering mortar, i. e., re-mixing with water after it had partially set, shall not be allowed.

### STRUCTURE

13. **Framing.** Studs spaced not to exceed 16" shall be run from foundation to rafters without any intervening horizontal grain in the wood. These studs shall be tied together just below the floor joists with 1"x6" boards which will be let into the studs on their inner side, so as to be flush and securely nailed, to them. These boards will also act as sills for the floor joists, which in addition will be securely spiked to the side of the studs.

14. **Bracing.** The frame of the building shall be so rigidly constructed and braced as to avoid cracking the stucco, "Type A." At least once between each two floors, brace between the studding with 2"x3" bridging, or pieces of 2"x4" on edge, keeping the bracing back at least one-half ( $\frac{1}{2}$ ) inch from the outer faces of the stud.

"Type B" Bracing may be omitted, as the sheathing boards act as bracing.

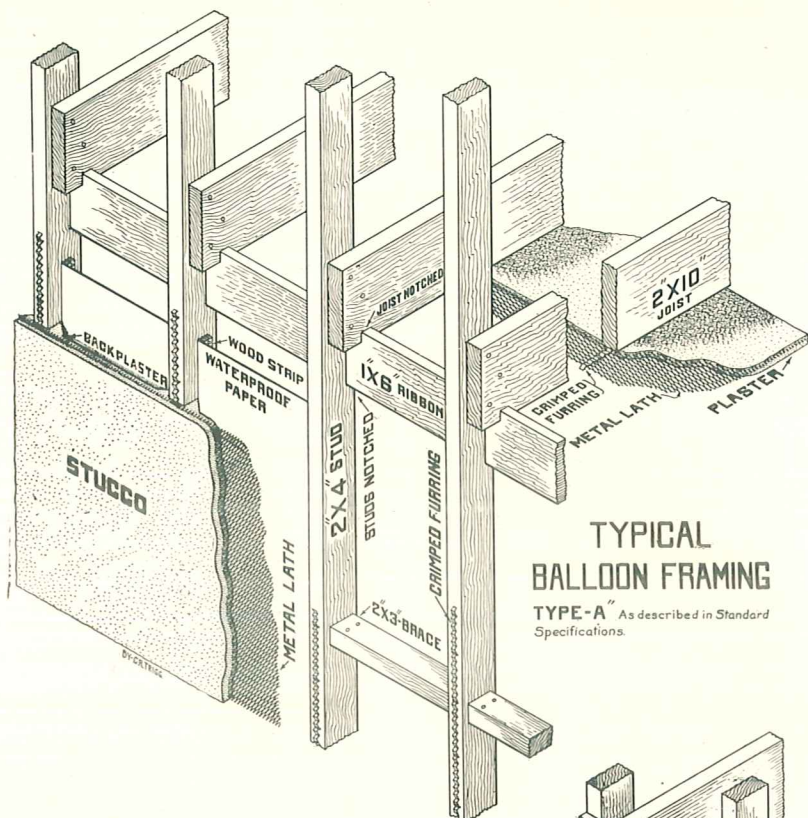
15. **Sheathing.** "Type A." The lath is to be fastened direct to the studding over metal furring strips and back plastered and no sheathing boards are to be used.

"Type B." Sheathing boards shall be not less than 6 inches or more than 8 inches wide, dressed on one or both sides to a uniform thickness of  $\frac{7}{8}$ ". They shall be laid horizontally across the wall studs and fastened with not less than 2 8d nails at each stud.

16. **Inside Waterproofing.** (This inside waterproofing is optional.)

"Type A." The faces of the stud and for one inch back of the face on each side where the plaster may come in contact with them, shall be thoroughly waterproofed with creosote or asphalt.





### TYPICAL BALLOON FRAMING

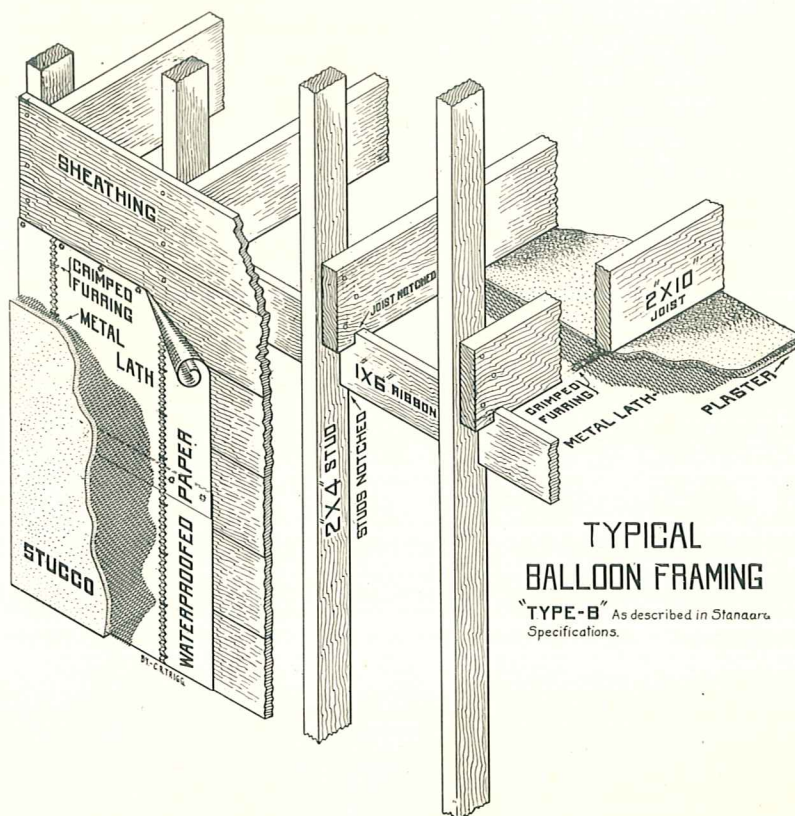
TYPE-A" As described in Standard Specifications.

"Type A." Galvanized or painted  $\frac{1}{2}$ " crimped furring strips not lighter than 22 gauge or other shape giving equal results shall be fastened direct to the studding, using  $1\frac{1}{4}$ "x14 gauge staples (galvanized or painted preferred), placed 12 inches apart.

"Type B." Galvanized or painted  $\frac{1}{2}$ " crimped furring strips not lighter than 22 gauge or other shape giving equal results over the sheathing paper and directly along the line of the studs, using  $1\frac{1}{4}$ "x14 gauge staples (galvanized or painted preferred), placed 12 inches apart. The same depth of furring should be adhered to around curved surfaces and furring strips shall be placed not less than  $1\frac{1}{2}$ " or more than 4" on each side of and above and below all openings.

"Type B." Over the sheathing boards shall be laid in horizontal layers, beginning at the bottom, a substantial paper well impregnated and thoroughly water-proofed with tar or asphalt. The bottom strips shall lap over the base board at the bottom of the wall, and each strip shall lap the one below at least 2 inches. The paper shall lap the flashings at all openings. When required the lower horizontal edge of each strip shall be cemented with hot or liquid tar or asphalt compound to the strip below and to the grounds of flashings at all openings. All tacking shall be within 2 inches of the top horizontal edge, where tacks will be covered by the lap of the strip above.

17. Furring. When furring strips form an integral part of the metal lath to be used, then separate furring strips as described in this paragraph are to be omitted.



### TYPICAL BALLOON FRAMING

TYPE-B" As described in Standard Specifications.





18. **Preparation of Original Surface.** All roof gutters shall be fixed and down-spout hangers and all other fixed supports and fasteners shall be put up before the plastering is done, so there will be no break made in the plastering where they are permanently fixed. Wall copings, balustrade rails, chimney caps, cornices, etc., shall be built of concrete, stone tile, or metal with ample overhang drip grooves or lip and water-tight joints to keep water from behind the plaster.

If wood sills are used, they should project well from the face of the plaster and have ample drip groove or lip.

Metal lath shall be stopped far enough above the level of the ground to be free from ground moisture.

Care should be taken to provide for placing all trim the proper distance from the studding or furring to show its right projection after the plaster is on.

19. **Lath.** The lath shall be galvanized or painted, metal lath weighing not less than 3.4 lbs. to the square yard.

20. **Application of Lath.** Place lath horizontally over the furring strips, driving  $1\frac{1}{4}$ "x14 gauge staples galvanized or painted (preferred) staples 8" apart over the furring strips into the studding. The sheets of lath shall be locked or lapped at least  $\frac{1}{2}$ " and tied at joints between studs both vertically and horizontally with 18 gauge wire.

21. **Corners.** There shall be 6 in. strips of metal lath (use Kornerite), placed around the corners and stapled over the lath or the sheets of metal lath shall be bent at right angles around the corners, a distance of at least 3 inches and stapled down as applied.

22. **Insulation.** (The adding of the insulation is optional.)

"Type A." After the lath on the outside has been back-plastered the air space may be divided by applying heavy building paper, quilting, felt, or other suitable insulating material between the studs, fastening it to the studs by nailing wood strips over the folded ends of the material. This insulation should be so fastened as to clear the bridging, leaving the most of the air space next to the plaster and to make tight joints against the wood-framing at the top and bottom of the spaces and against the bridging where the face intercepts.

"Type B." When quilting, felt, or other insulating material is to be used it shall be applied to the outer surface of the sheathing boards under the waterproof paper.

#### MORTAR COAT

23. **Plaster.** "Types A and B." The first coat shall be mixed in the proportion of not more than three (3) cubic feet of sand, one (1) sack of cement, and ten (10) pounds of hydrated lime. Hair or fibre should be added in sufficient quantity to bond the mortar.

The second coat shall be mixed in the proportion of not more than three (3) cubic feet of sand to one (1) sack of cement, and if hydrated lime is used, not more than ten (10) pounds to one (1) sack of cement.

For third coat the proportion of sand to cement shall not be less than three (3) cubic feet of sand to one (1) sack of cement. Hydrated lime should not be added.

NOTE: When a waterproofing is to be added to mortar for stucco work it shall be added in strict accordance with the specifications of the manufacturer. Lime should be omitted in the coat in which waterproofing may be used.

24. **Application.** The plastering should be carried on continuously in one general direction, without allowing the plaster to dry at the edge. If it is impossible to work the full width of the wall at one time, the joint should be at some natural division of the surface, such as a window or door.

"Type A." The first coat shall be applied to the outside of the lath and pushed through sufficiently to give a good key. Over the face of the studs, the plaster shall be forced well through the lath in order to fill entirely the space between the lath and the stud. The backing coat shall be applied to the back of the lath and shall be thoroughly troweled so that the lath shall be entirely covered.

"Type B." The first coat shall be applied to the lath and thoroughly pushed through against the inside waterproofing so as to completely imbed the metal of the lath on both sides. Special care shall be taken to fill all voids around furring strips and where the lath laps.

25. Back plastering may be applied any time after the scratch coat has received its initial set.

26. **Roughing.** Soon after applying and before the initial set has taken place, the surface of the coats which are to receive succeeding coats shall be roughened with a saw-toothed paddle or other suitable device.

27. **Dampening.** Before applying mortar the surface of the preceding coat shall be wetted to saturation to prevent absorption of water from the fresh mortar.

28. **Thickness of Coat.** "Type A." The completed stucco wall including back plastering shall not be less than one and one-half ( $1\frac{1}{2}$ ) inches thick.

"Type B." The completed stucco wall shall not be less than one (1) inch thick from the face of the lath.

29. **Drying Out.** The final coat shall not be permitted to dry out rapidly and adequate precaution shall be taken, either by sprinkling frequently after the mortar has set hard enough to permit it or by hanging wet burlap or other material over the surface.

30. **Freezing.** Stucco should never be applied when the temperature is below freezing.





### FINISH

31. **Smooth Troweled.** The finishing coat shall be troweled smooth with a metal trowel with as little rubbing as possible.

32. **Stippled.** The finishing coat shall be troweled smooth with a metal trowel with as little rubbing as possible, and then shall be lightly patted with a brush of broom straw to give an even stippled surface.

33. **Sand Floated.** The finishing coat, after being brought to a smooth even surface, shall be rubbed with a circular motion of a wood float with the addition of a little sand to slightly roughen the surface. The floating shall be done when the mortar has partially set.

34. **Sand Sprayed.** After the finishing coat has been brought to an even surface it shall be sprayed by means of a wide, long fibre brush, a whisk-broom does very well, dipped into a creamy mixture of equal parts of cement and sand, mixed fresh every 30 minutes and kept well stirred in the bucket by means of the whisk-broom or a paddle. This coating shall be thrown forcible against the surface to be finished. This treatment shall be applied while the finishing coat is still moist and before it has attained its final set, i. e., within 3 to 5 hours. To obtain lighter shades add hydrated lime of 5 to 15 per cent of the volume of the cement.

35. **Splatter Dash or Rough Cast.** After the finishing coat has been brought to a smooth, even surface and before attaining final set, it shall be uniformly coated with a mixture of one part cement and two parts of sand thrown forcibly against it to produce a rough surface of uniform texture when viewed from a distance of 20 feet. Special care shall be taken to prevent the rapid drying out of this finish.

36. **Pebble Dash.** After the finishing coat has been brought to a smooth, even surface, and before attaining initial set, clean round pebbles or other material as selected, not smaller than  $\frac{1}{4}$ " or larger than  $\frac{3}{4}$ " previously wetted, shall be thrown forcibly against the mortar so as to imbed themselves in the fresh mortar. They shall be distributed uniformly over the surface of the final coat and may be pushed back into the mortar with a clean wood trowel, but no rubbing of the surface shall be done after the pebbles are imbedded.

37. **Exposed Aggregates.** The finishing coat shall be composed of an approved selected coarse sand, marble dust, granite dust of other special material, in the proportion given for finishing coats and within 24 hours after being applied and troweled to an even surface shall be scrubbed with a stiff brush and water. In case the cement is too hard, a solution of one part muriatic acid in four parts of water by volume can be used in place of water. After the aggregate particles have been uniformly exposed by scrubbing, care shall be taken

to remove all traces of the acid by spraying with a hose.

38. **Mortar Colors.** When it is required that any of the above finished shall be made with colored mortar, not more than 10% of the weight of Portland Cement shall be added to the mortar in the form of finely ground coloring matter.

A predetermined weight of color shall be added dry to each batch of dry fine aggregate before the cement is added. The color and fine aggregate shall be mixed together and then the cement and lime mixed in. The whole shall then be thoroughly mixed dry by shoveling from one pile to another through a  $\frac{1}{4}$ " mesh wire screen until the entire batch is of uniform color. Water shall then be added to bring the mortar to a proper plastering consistency.

### MACHINE STUCCO

39. Stucco may be applied by machine, provided the results obtained are equal to those produced by hand work.

### OVERCOATING

40. A tight roof is essential.

Where the lath is applied over the old sheathing or weather boards, some provision must be made for extending the old window or door frames. Furring strips should be applied about 1 foot apart over the matched siding, but these may be omitted when the old lap siding will allow proper embedding of the lath with the mortar.

In case the furring strips are fastened to the studding, it is not necessary to provide for extending the window and door frames, and the new stucco finish will have the same relations as the old weather boarding.

If the weather boarding is in poor condition, it should be removed and furring strips and metal lath applied over the sheathing to which waterproofing has previously been fastened. It may be advisable also to tear off the sheathing, in which case the furring strips can be fastened direct to the studding after the bracing between the studs and then apply metal lath and plaster as previously described.

### OTHER BULLETINS ISSUED BY THE BERGER MFG. CO.

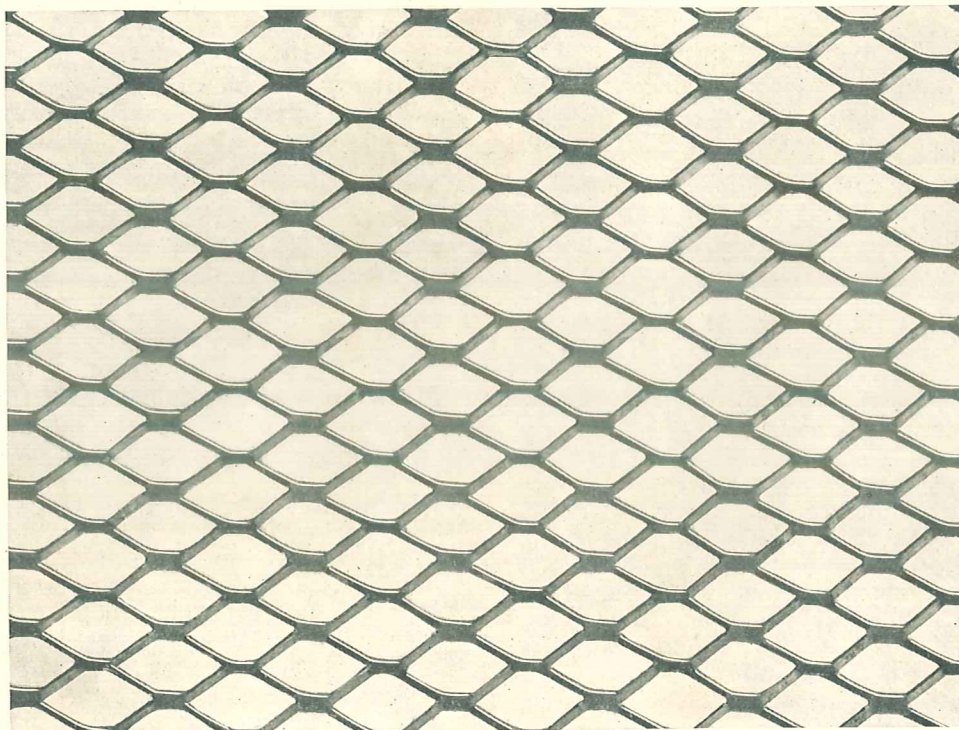
- Building Specialties Portfolio No. 10.
- Metal Lumber Bulletin No. 11.
- Metal Lumber Bulletin No. 12.
- Raydiant Sidewalk Light Bulletin No. 13.
- Steel Ceiling Catalog No. 19.
- Steel Ceiling Catalog No. 21.
- Ribplex Bulletin No. 14.
- Steel Stock Room Equipment Bulletin No. 20.
- Steel Locker Bulletin No. 15.
- Steel Filing Case Bulletin No. 17.
- Corner Bead Booklet.
- Pressed Steel Core Bulletin.
- Ornamental Roofing Catalog No. 18.
- General Catalog No. 10.





## Berger's B-B (Berger's Best) Expanded Metal Lath

Made from Open Hearth Steel and Toncan Metal, Painted or Galvanized.  
Commonly Known as Diamond Mesh. Photograph is Full Size



SHEETS 18" AND 24" WIDE BY 96" LONG

Gauge	Painted Weight per sq. yd.	Galvanized Before Forming Weight per sq. yd.	Galvanized After Forming Weight per sq. yd.	Painted Weight per 12-yd. Bundle	Galvanized Before Forming Weight per 12-yd. Bundle	Galvanized After Forming Weight per 12-yd. Bundle
27	2.33 lbs.	Not Made	Not Made	28 lbs.	Not Made	Not Made
26	2.5 lbs.	2.83 lbs.	3.10 lbs.	30 lbs.	33.96 lbs.	37.2 lbs.
25	3 lbs.	Not Made	Not Made	36 lbs.	Not Made	Not Made
24	3.4 lbs.	3.42 lbs.	4 lbs.	40.8 lbs.	41.04 lbs.	48 lbs.

Number sheets in bundle ..... 9  
Number yards in bundle, 18" wide (Preferred Width).....12  
Number yards in bundle, 24" wide .....16  
No bundles will be broken.

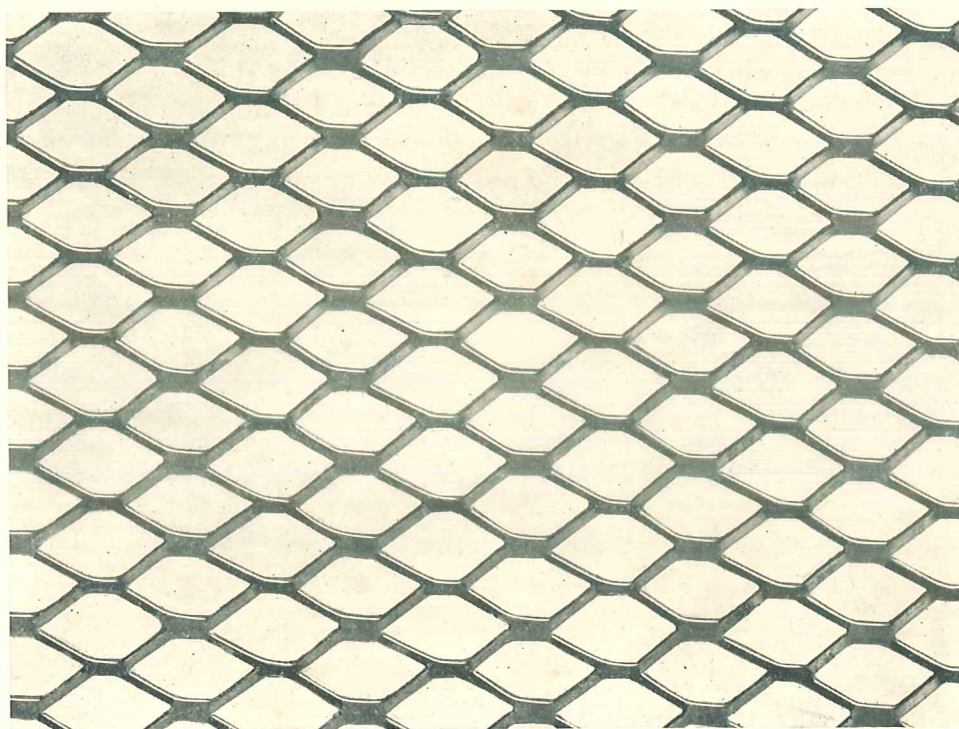
Toncan Expanded Metal Lath is not furnished in 27 and 25 gauge.





## Berger's Standard Expanded Metal Lath

Made from Open Hearth Steel or Toncan Metal, Painted or Galvanized.  
Strand is the Same Width as in Berger's B-B Lath but the Mesh  
is Slightly Wider. Photograph is Full Size

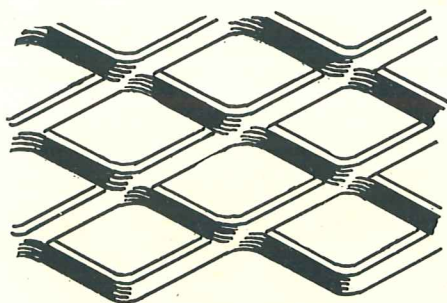


REPRESENTED BY  
JOHNSON-BIENER CO.  
315 CITIZENS BANK BLDG.  
NORFOLK, VIRGINIA  
TELEPHONE 8497

SHEETS 24 GAUGE 22" WIDE BY 96" LONG  
SHEETS 26 GAUGE 21" WIDE BY 96" LONG

Gauge	Painted Weight per sq. yd.	Galvanized Before Forming Weight per sq. yd.	Galvanized After Forming Weight per sq. yd.	Painted Weight per Bundle	Galvanized Before Forming Weight per Bundle	Galvanized After Forming Weight per Bundle
26	2.2 lbs.	2.43 lbs.	2.56 lbs.	30.8 lbs.	34.02 lbs.	35.8 lbs.
24	2.8 lbs.	2.81 lbs.	3.25 lbs.	41 lbs.	41.22 lbs.	47.7 lbs.

Number of sheets to the bundle ..... 9  
Number yards to bundle of 26 gauge ..... 14  
Number yards to bundle of 24 gauge ..... 14½  
No bundles will be broken.



ACTUAL SIZE OF MESH

Berger's No. 22 Gauge "Government Specification" or  
Post Office Lath, Made from Open Hearth Steel and  
Toncan Metal, Painted or Galvanized

The Government has made its own specifications for Expanded Metal Lath. In accordance with these specifications we make a 22 gauge lath, weight 4.33 lbs. per yard, with strand 3/32 inch wide. It comes in sheets 18 inches x 96 inches.





## Material Used in the Manufacture of Berger's Expanded Metal Lath

### Open Hearth Steel

The open hearth process produces a steel more uniform and more reliable than can be made by any other method. This is due to the fact that the operations are under greater control and from tests made at frequent intervals during the heat the proper proportion of all chemical elements is main-

tained to produce the required analysis. For the manufacture of the best steel lath it is necessary to have the uniformly tough, ductile sheets which the open hearth process makes possible to produce, therefore, we use open hearth sheets in the production of our steel lath.

### Toncan Metal

Just as open hearth steel sheets are a better grade than Bessemer steel so Toncan Metal sheets are superior to any steel. By a special process of manufacture practically all impurities are removed, leaving a pure iron of great density and homogeneity. This metal has the lasting qualities of the

old-time irons plus the working qualities of modern steel. It has, as everyone knows, been used for years in all climates under the most trying conditions, such as exposure to salty sea air, and has proven beyond a doubt the most durable sheet metal made from iron ore.

## Advantages of Expanded Metal Lath

### Ten Principal Reasons Why Steel or Toncan Metal Expanded Lath Should Be Used

1st. Expanded Metal Lath is fire-resistant and non-combustible.

2nd. Waterproof, therefore does not swell and shrink.

3rd. Reinforces the plaster slab at all points and in all directions. It not only prevents cracks but prevents the plaster from breaking up and falling off.

4th. Permits decorating immediately after plaster is dry.

5th. It is vermin-proof and prevents rodents from making holes through the walls, therefore, is more sanitary.

6th. By its use for solid partitions it saves valuable space.

7th. It can be applied faster and easier than wood lath.

8th. It is streak-proof and stain-proof. It does not streak plaster.

9th. Gives strength and stability to a building, especially when used for stucco construction.

10th. It is easily formed or broken on the job to conform to the architect's design for coves, cornices, columns, beams, etc.

Berger's Expanded Metal Lath is furnished painted or galvanized.





## Tools and Materials Needed in Expanded Metal Lath

Where Expanded Metal Lath is applied to channel studs or other metal members, it is applied with soft annealed tie wire which comes in "stones" about 12 lbs. per stone. Eighteen gauge is commonly used, either black or galvanized as may be called for by specification. A pair of combination cutter and plyers is used for cutting and twisting the wire; a hammer, wrench and screw driver are needed where framework for receiving lath is bolted together. Prong Lock Studs and Furring (see pages 8 and 47) provide means for easily and quickly securing Expanded Metal Lath. The prongs insure fastening of lath at proper points as they must be turned down before plaster can be applied. Some means of cutting and bending studs and other members must be provided where the work is of some

magnitude. Cutters and benders are made especially for this work and can be easily handled by one man.

### Staples.

Where Expanded Metal Lath is applied to wood studs or frame, 14 gauge staples are usually used,  $1\frac{1}{4}$ " or  $1\frac{1}{2}$ " long. Chicken wire staples should never be used, but 4-penny nails may be used to advantage. Drive them in half way and bend them down on the lath. If care is used a good job results. Care should be taken to tie the edges of all sheets at least once midway between studs or joists to prevent edges of sheets from separating when plaster is applied.

## How to Apply Expanded Metal Lath

Expanded Metal Lath is manufactured in sheets of gauges and sizes noted on pages 36 and 37.

All manufacturers of Expanded Metal Lath recommend the use of the heavier gauges, especially for ceilings and outside work.

For outer walls the studs should be spaced 12 or 16 inches on centers depending upon the weight of the lath used. The Expanded Metal Lath should be applied horizontally, commencing at the top, or ceiling and working down.

It is a good practice to turn a right angle bend on the side of first sheet and let it come out on the ceiling about six inches and fasten it to the ceiling lath, which will prevent cracks in the plaster at the junction of wall and ceiling. The ceiling lath should be applied first.

The Lath should be stapled every 6 inches, or 4 staples to the 18-inch sheet, using 1-inch,  $1\frac{1}{4}$ -inch or  $1\frac{1}{2}$ -inch staples (black or galvanized as may be specified), made of No. 14 gauge wire.

The last edge of the sheet should not be stapled until the next sheet has been applied, giving one-half-inch lap, then both edges may be fastened with the same staple.

The Prong Lock system (see pages 8 and 47) insures a secure fastening of lath at proper spacing.

Care should be taken to wire the edges of the two sheets midway between the studs so that they cannot separate when the plaster is applied. No. 18 gauge soft wire is suitable for this purpose.

The ends of sheets at corners should be staggered alternately, each sheet running at least one stud on the other side from corner. This ties the corner in such a way that cracks will not occur if the building is properly erected.

One of the greatest advantages of using Expanded Metal Lath is to prevent cracks in the plaster so that the walls may be decorated just as soon as plaster has thoroughly dried out.

It is a good practice to run the Lath down to the floor so that the plaster may be carried down tight. This prevents fire from creeping through and assists in preventing transmission of sound. Experts claim that the greater portion of sound is transmitted at top and bottom of partitions or walls on account of not being properly sealed at those points.

Wire and staples will be furnished with the lath when ordered.





When Expanded Metal Lath is applied to steel furring strips, or studs, No. 18 or No. 16 gauge soft annealed wire should be used (preferably galvanized).

One end of the wire is bent in the shape of a long hook or V. The other end is long enough to allow the V-shaped end to be passed through the mesh of the Lath alongside of the furring strip until the free end of the hook or V passes back of and around the furring. Then the wire is pulled forward, bringing the free end of the hook back through the Lath

on the other side of the furring, after which the ends are twisted two turns and snipped off. The free ends are bent over to one side to prevent the plasterer's trowel from striking them.

Expanded Metal Lath can be used in similar manner for making cornices, coves, column and beam coverings; in fact, for almost any work where plaster is used. The Lath is easy to apply after the ground work or furring has been prepared.

See specifications for stucco construction.

## How to Use Expanded Metal Lath for Stucco Work

Expanded Metal Lath specifications for stucco construction applied directly on studs without sheathing are as follows:

Staple one-half-inch Galvanized Crimped strips or  $\frac{1}{2}$ " V strip Furring down center of each stud, over which staple the painted or galvanized Metal Lath horizontally with  $1\frac{1}{2}$ -inch No. 14 gauge galvanized staples 6 inches apart. The edges of the sheets of Lath should be securely wired between the studs. The sheets should be bent around the outside and inside corners to the next stud and joint staggered.

Care should be taken to have the face of all frames or facings at least  $1\frac{1}{2}$  inches out from the face of stud so it will project about  $\frac{3}{8}$  inch to  $\frac{1}{2}$  inch beyond finished plaster. Edges of all facings and frames should be rabbited back at least  $\frac{3}{4}$ " to allow plaster to be forced behind to make weather break.

When sheathing is used,  $\frac{1}{2}$ -inch Galvanized Crimped strips or  $\frac{1}{2}$ -inch V strip furring should be used vertically on 12-inch centers, over which Metal Lath should be stapled as above and plaster forced well through the mesh of Lath so it will flatten out against the sheathing and cover the back of the Lath.

## Application of Plaster to Expanded Metal Lath

In plastering on Expanded Metal Lath the main thing is not to use too much mortar on your trowel and too much force in applying. Make easy work of it and do not shove on your trowel as you would for wood lath.

Pass the trowel over the surface lightly and the strands of the Lath will cut the mortar off and pull it through the mesh. No more mortar should pass through than is needed to cover the strands of the Lath. This action is good because it imbeds the Lath in the plaster slab, reinforcing it and making a good, strong job.

It is essential to have the mortar gauged properly (not too thin or too stiff) so that it will work just right through the mesh of the Lath.

Do not try to put much mortar over the lath the first coat—just skim over lightly and you will secure much better results. Gauge the mortar "high" enough for the first coat so it will set up quick and hard. This will make the lath stiff and rigid; then you can put on as much "mud" as you desire for the next coat.

Building buyers today are asking: "What's Behind Your Plaster?"





## Exterior Finish of Stucco Wall

Stippled, Spatter Dash, Pebble Dash, Exposed Aggregate,  
Sand Float, Rough Cast, Sand Sprayed

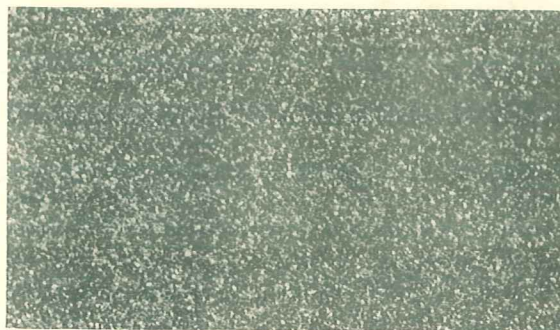
While it may be necessary in some instances to use sand or smooth finish for stucco walls yet we recommend strongly the use of rough finish in preference to the smooth finishes. Not only do the rough finishes adapt themselves more pleasingly to general surroundings, but have the advantage of not showing small defects that may develop afterwards which are not deleterious but might detract

from the appearance if smooth finish were used, while with the rough-cast they would not be noticed. This relates to hair and map cracks which sometimes develop but are not deep enough to do harm. They are mostly caused by too sudden drying of exterior surface.

(See Specifications for Applying, Page 32.)



STIPPLED STUCCO FINISH



EXPOSED AGGREGATE STUCCO FINISH



SPATTER DASH STUCCO FINISH



SAND FLOATED STUCCO FINISH



PEBBLE DASH STUCCO FINISH



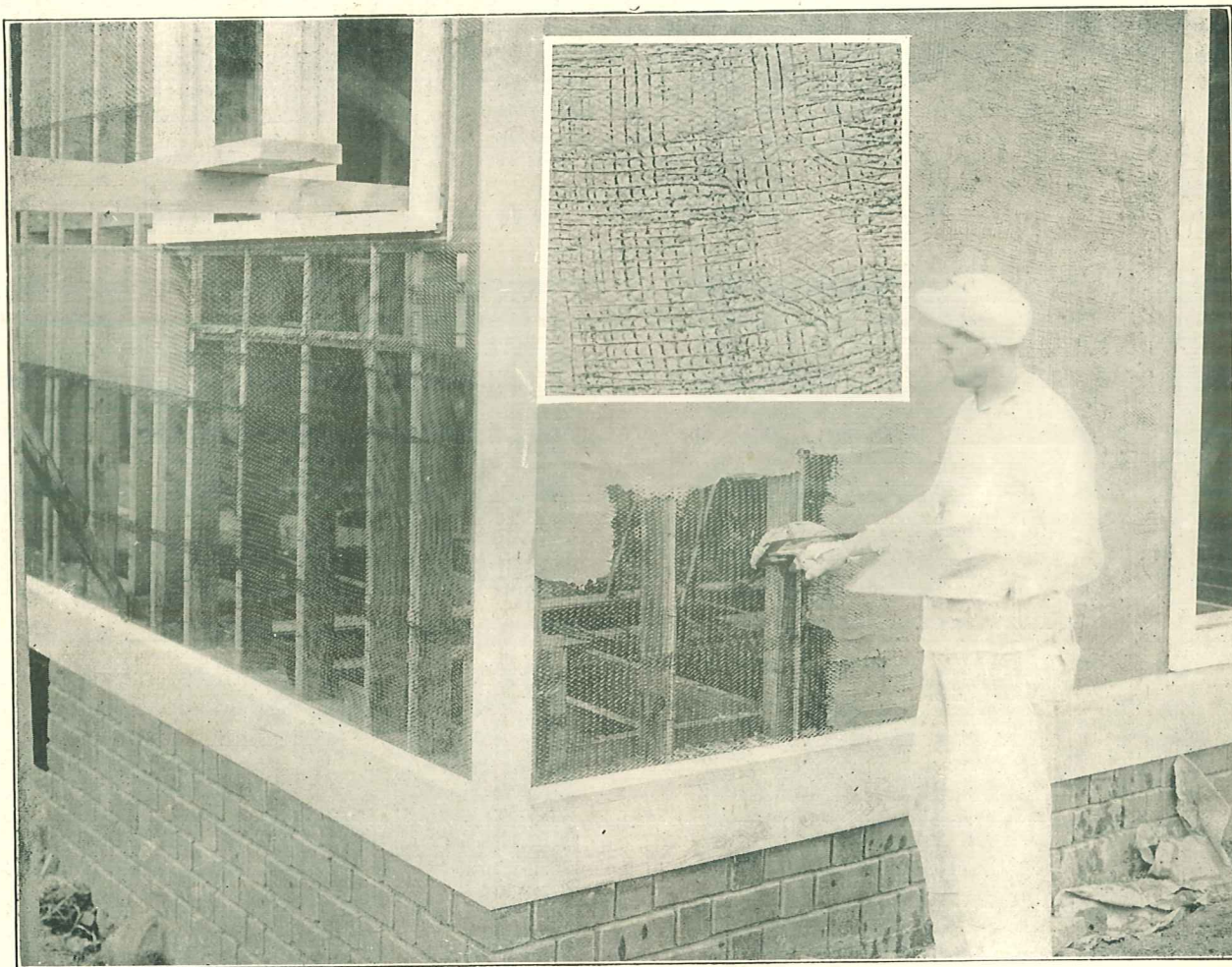
ROUGH CAST STUCCO FINISH





## Scratch Coat Application

On Expanded Metal Lath for Stucco Wall



CUT OF RESIDENCE EXTERIOR WALL BEING PLASTERED AND A DETAIL OF SCRATCH COAT SET IN

It is important to have good long cow's hair in the scratch coat. This should be soaked and thoroughly separated before mixing with sand and cement. The result to be obtained in applying the scratch coat is a good clinch on the back side of the lath. The mortar should be just heavy enough to allow a reasonable amount of pressure when applying. Care should be exercised to force the mortar back of the frames and facings to shut out the rain and wind. The frames and facings should be rabbited on the inside edge. Caps over windows

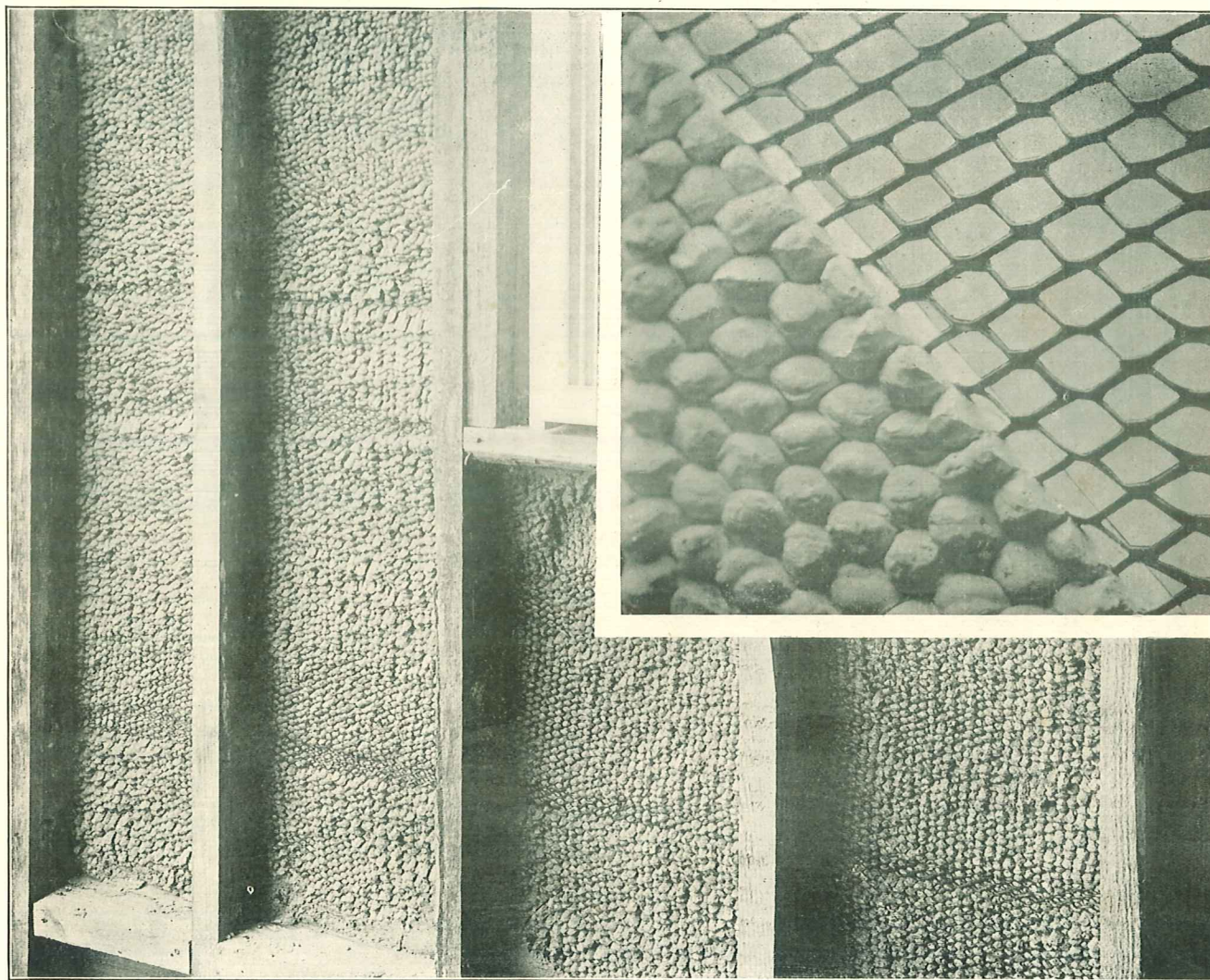
and doors should have a lip about  $\frac{3}{8}$ " thick, extending up  $\frac{3}{4}$  of an inch, over which plaster is worked, making an effective flashing. Metal flashing may be used to good advantage.

The scratch coat (see enlarged section in photograph) should be thoroughly scratched as the work progresses. The second coat should be applied just as soon as the first coat has set up sufficiently to prevent breaking or injuring the clinch. Spatterdash or rough-cast should be applied to second coat as soon as possible to insure a good bond.





## Normal Clinch on Expanded Metal Lath



CUT—RESIDENCE SHOWING INTERIOR VIEW OF EXTERIOR WALL BEFORE BACK PLASTERING

This picture shows how the mortar clinches through the lath, imbedding the latter. In the best stucco construction the clinch is back plastered, bringing the lath in the center of the plaster and forming a homogeneous, reinforced wall—the most

substantial lath and plaster construction obtainable.

The photograph inserted at the right shows the exact size of Berger's B-B (Berger's Best) Expanded Metal Lath and gives a better detail of the clinch.





## Expanded Metal Lath and Plaster Applied on Inside Wall After Back Plaster has been Applied



CUT—RESIDENCE SHOWING INSIDE WALLS

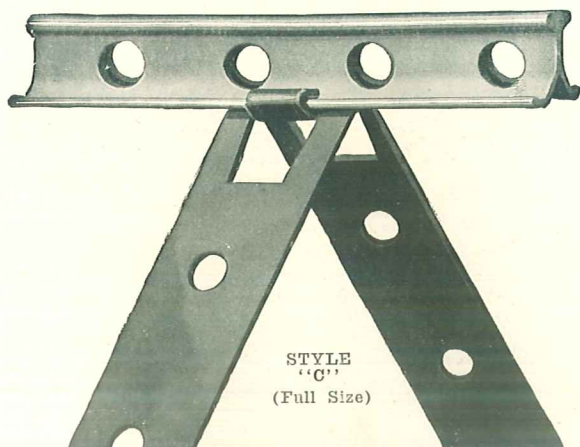
Some builders apply insulating paper between the studs. However, we have not shown it, as we believe the back plaster coat is sufficient and the bother and expense of adjusting the paper between the studs is quite an item. With the outer slab properly done the interior plaster will take care of itself, and the house will be dry and warm.

A good precaution against fire in frame buildings is to put a "stop" at story levels between studs with about 2" of concrete on Expanded Metal Lath to prevent fire from creeping up through partitions to other stories. This is highly recommended by insurance companies.

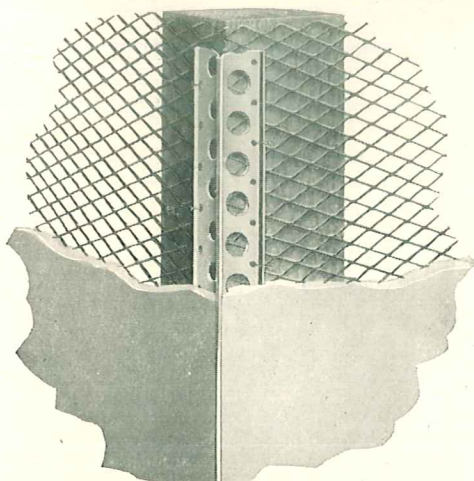


# Berger's Metal Corner Beads

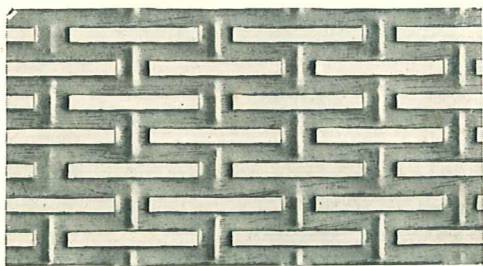
Made from tight coat galvanized sheets. Standard lengths 6, 7, 8, 9 and 10, feet. The wide beads may be used with or without clips; the narrow beads require clips. This page shows but a few of the styles we furnish. Our special corner bead booklet covers the subject in detail.



STYLE  
"C"  
(Full Size)

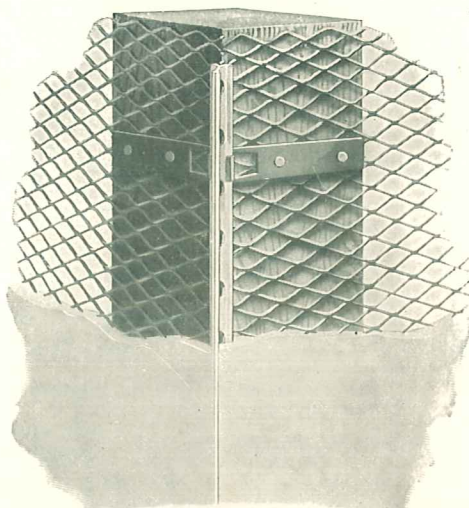


APPLIED ON METAL LATH

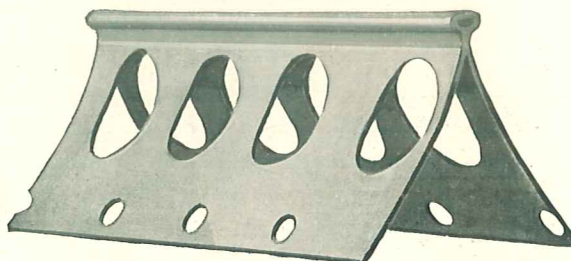


BERGER'S LATTICE SHEET LATH

Berger's Lattice Sheet Lath is not expanded, but perforated, having greater clinch area than any other sheet lath made, yet it is extremely rigid and stiff. Sheets 18"x96", weight 4½ lbs. per yard, 9 sheets and 12 square yards to the bundle.

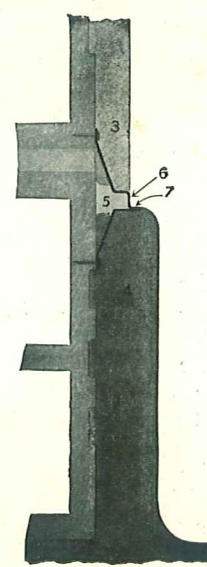
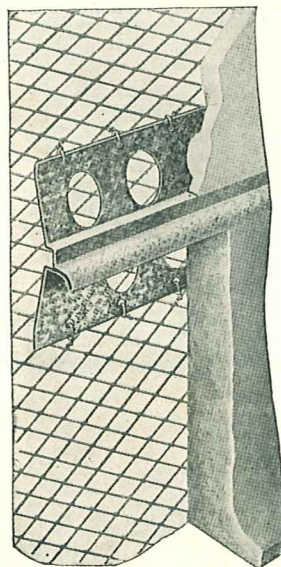


APPLIED ON METAL LATH



STYLE "E" (Full Size)—WITHOUT FLANGES

CURVED POINT METAL BASE SCREED  
Also Furnished in Straight or Slant Point





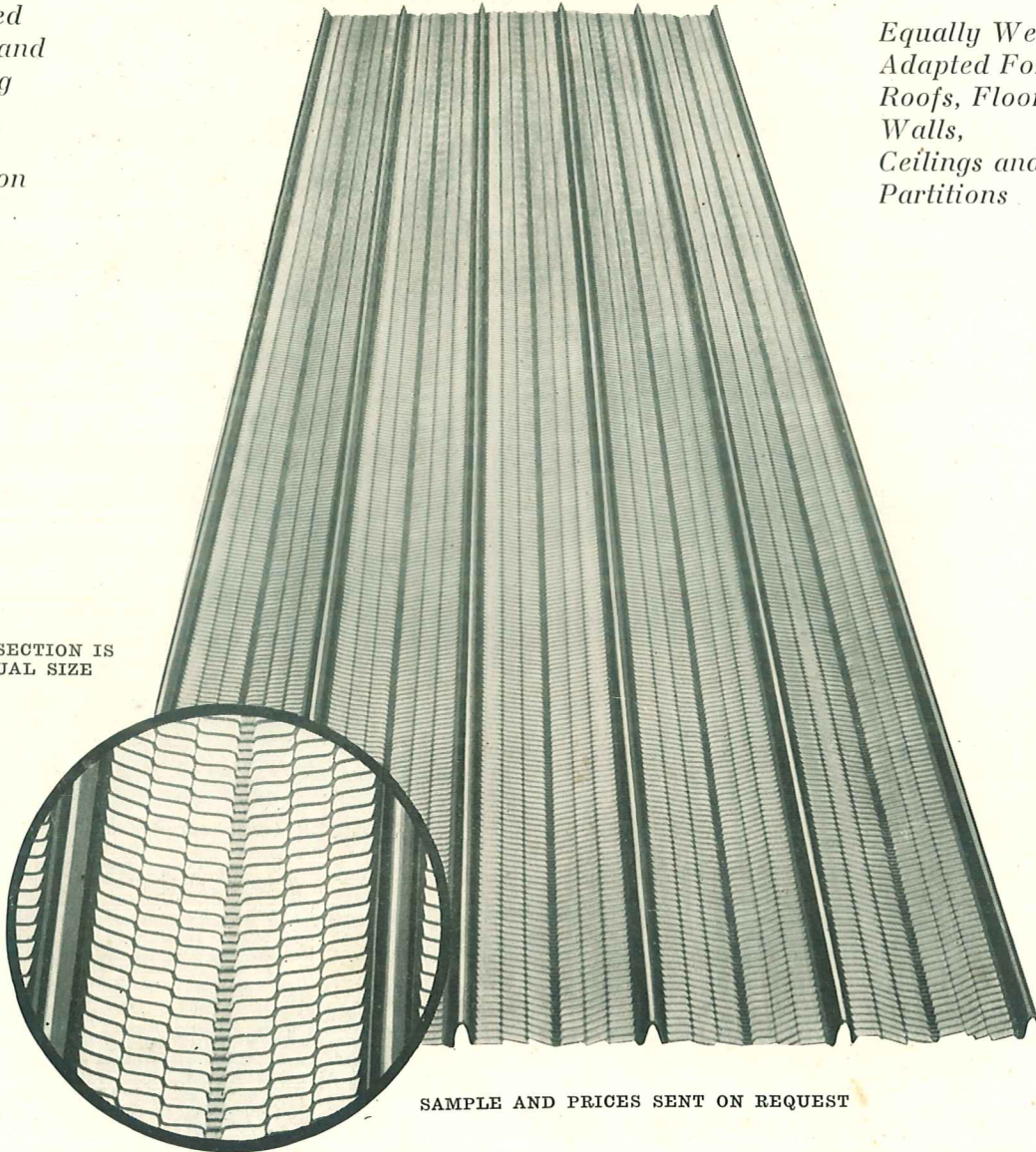
# RIBPLEX

AN EXPANDED METAL WITH RIBS

*A Combined  
Centering and  
Reinforcing  
Plate For  
Fireproof  
Construction*

*Equally Well  
Adapted For  
Roofs, Floors,  
Walls,  
Ceilings and  
Partitions*

DETAIL SECTION IS  
 $\frac{1}{3}$  ACTUAL SIZE



SAMPLE AND PRICES SENT ON REQUEST

The design is a plexus or net work of strands forming meshes between V-shaped stiffening or supporting ribs.

The ribs act as beams in supporting the wet concrete or plaster, thus eliminating form work on short spans in floor or roof construction; also studs and furring in plastering work.

The turned-on-edge mesh stiffens the expanded metal between the ribs and develops the full tensile strength of the metal. It also prevents the plates from becoming twisted or distorted in shipping or erecting.

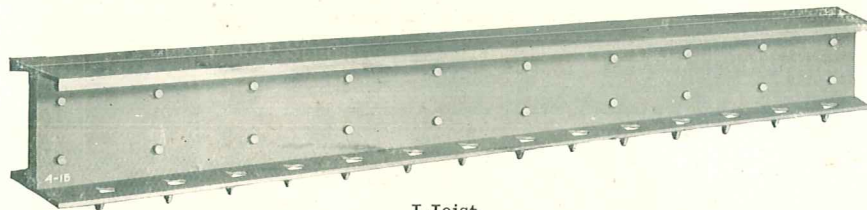
The small mesh gives a splendid bond, allowing but a small percentage of waste of concrete or plaster due to dripping.

The sheets are 24 inches wide; stock lengths 4, 5, 6, 7, 8, 9, 10, 11 and 12 feet. Gauges 24, 26 and 28. Ribs  $\frac{3}{4}$ " deep, spaced 4.8" center to center.

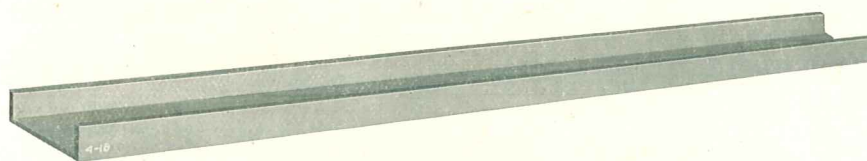
Ribplex is extremely uniform in texture and manufacture, every sheet being perfect and a duplicate of all others.

Ask for Ribplex Bulletin No. 14.

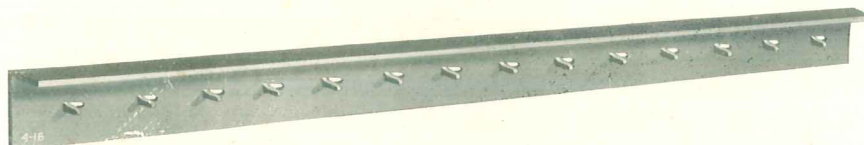




I-Joist



Channel Stud Track



Wall Ribbon



T-Stud Socket Strip



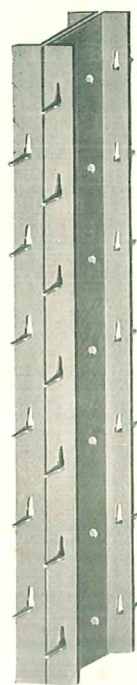
Channel Stud Socket Strip



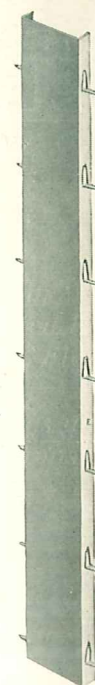
U-Stud Socket Strip

The above comprise the standard Metal Lumber Prong Lock Pressed Steel shapes adapted, in connection with Expanded Metal Lath, to the construction of floors, partitions, roof, suspended ceilings, exterior walls, beam, column and girder covering and exterior wall furring. Note the prongs punched from flanges with which the Expanded Metal Lath is secured to the members.

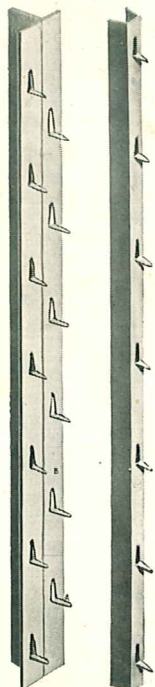
Ask for Metal Lumber Bulletin No. 12.



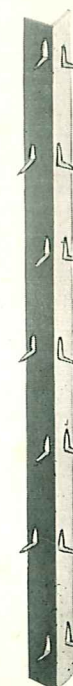
I-Stud



Channel Stud



T-Stud U-Stud



Angle Stud



# MEMORANDA

This image shows a single sheet of white, lined notebook paper. The paper has horizontal blue or grey ruling lines spaced evenly across its surface. There are no margins, text, or other markings on the page. The lighting is even, and the paper appears slightly textured.

# METAL LATH



JOHNSON-BIENER CO., INC.  
215 CITIZENS BANK BLDG.  
NORFOLK, VIRGINIA  
TELEPHONE 2407



REPRESENTED BY  
JOHNSON BURNER CO., L.  
15 CITIZENS BANK BLDG.  
NORFOLK, VIRGINIA  
TELEPHONE 887